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ASTRONOMICAL

AND

METEOROLOGICAL OBSERVATIONS

MADE DURING

THE YEAR 1872,

AT THE

UNITED STATES NAVAL OBSERVATORY.

REAR-ADMIRAL B. F. SANDS, U. S. N.,

SUPERINTENDENT.

PUBLISHED BY AUTHORITY OF THE

HON. SECRETARY OF THE NAVY.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1874.

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ERRATA TO WASHINGTON OBSERVATIONS FOR 1871.

On page LXXVI, column 7, line 10, from bottom, for 0.42 read 0.52.
On page LXXVI, column 10, line 10, from bottom, for 0.10 read 0.00.

ERRATA TO WASHINGTON OBSERVATIONS FOR 1872.

Page.	Number.	Column.	For—	Read—
6	29	3	ζ^1 Ceti	ξ^1 Ceti
6	29	18	2 4 12.48	2 6 12.48
6	30	3	ζ Arietis	ξ Arietis
6	31	3	ζ^2 Ceti	ξ^2 Ceti
6	43	18	$7^s.58$	$7^s.98$
6	43	19	$-0^s.44$	$-0^s.04$
16	4		Seconds of transit, mean wire and App. A. R. should be increased 1 .	
16	28		Seconds of transit, mean wire and App. A. R. should be decreased 1^s.	
16	4	19	−1.19	−0.19
16	28	19	+0.75	−0.25
54	5	19	−0.73	+0.73
54	36	18	49.88	49.32
54	36	19	−0.51	−0.07
92	48		The seconds of transit should be increased by $30^s.0$, and the mean wire and the Apparent A. R. by 29^s.	
215			21 Cassiopeæ S. P., April 23, for −0.73 read +0.73.	
215			21 Cassiopeæ S. P., Mean, for +0.372 read +0.362.	

The sign of the precession in North Polar Distance in the Catalogue, pages 271–288, should be changed.

APPENDIX I.

Page.	Column.	Z. D. S.	For—	Read—
24	4	69°	0.111, 0.122, 0.132, 0.143, 0.154	0.011, 0.022, 0.032, 0.043, 0.054
31	12	36	0.216	0.212

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REPORT OF THE SUPERINTENDENT OF THE OBSERVATORY TO THE CHIEF THE BUREAU OF NAVIGATION.

UNITED STATES NAVAL OBSERVATORY,
Washington, October 18, 1872.

COMMODORE: Agreeably to your directions, the estimates for the support of the Naval Observatory having been already made, I have the honor to submit the following annual report:

THE EQUATORIAL.

The observations required by the frequent discoveries of small planets during the past year, and the return of two interesting periodical comets, have furnished the chief employment for this instrument. Good series of observations were obtained of the comets of Encke and Tuttle. The observations of Encke's comet, together with four drawings, have been published in a special report, forming Appendix No. II of the annual volume for 1870. Series of measurements of the double star Sirius were made last spring, and have been published in the *Astronomische Nachrichten*. Occultations of stars by the moon have also been observed.

This instrument is now in good working order; and the Bond chronograph, used in the equatorial observations, has been cleaned by Mr. Gardner, the instrument-maker of the Observatory, and performs well.

The observations have been made chiefly by Professor A. Hall, who has been assisted by Assistant Observer A. N. Skinner. During the day, Mr. Skinner is fully occupied with computations for the catalogue now preparing by Professor Yarnall and with proof-reading, so that he can give but partial attention to observations with the equatorial.

The zones of stars observed at the Naval Observatory with the mural circle, in the years 1846, 1847, 1848, and 1849, have been prepared by Professor Hall, and printed and published as an appendix, No. II, to the annual volume for 1869. The zones observed during the same years with the west transit instrument are printed, and will appear as an appendix to the annual volume for 1870. The printing of the zones observed with the meridian circle in the years 1847, 1848, and 1849 will immediately follow, and with these the publication of the zones of stars observed at the Naval Observatory will be completed.

THE GREAT EQUATORIAL.

The object-glass of this instrument may be regarded as finished, the artist not having been able, for some weeks past, to detect, certainly, any imperfection of figure

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The performance of the glass is, in every respect, admirable. The mounting is now being made, and it is hoped that the instrument will be ready and mounted in the new dome now being erected at the Observatory for it before the time set by the contract has half expired.

The contract for tower and dome for its reception has been awarded to Mr. J. G. Naylor; the work is commenced, and will be finished and ready by the time the instrument is completed.

THE TRANSIT CIRCLE.

This instrument is in charge of Professor Harkness, assisted by Professor Eastman and Assistant Observers Frisby and Stone. During the past year it has been employed on the sun, moon, and planets, and a large list of miscellaneous stars whose places are required for the better determination of the latitude of the eclipse-station of August, 1869, at Des Moines; for the reduction of observations made with the equatorial; and for use in Professor Newcomb's revision of the theory of the moon. Only so many Nautical-Almanac stars have been observed as were necessary for the determination of azimuth and time. The quantity of work done during the year is fully up to the average.

The observing-couch has been furnished with improved rollers of gun-metal, and new wires have been inserted in the collimators.

A new standard barometer, made by James Green, of New York, has been purchased, and is now mounted in the transit-circle room; and a new chronograph, made by Alvan Clark & Sons, from designs by Professor Harkness, has also been obtained, and will be brought into use as soon as the necessary changes can be made in the galvanic connections.

DIFFERENCES OF LONGITUDE.

In July and August last, Professor Harkness exchanged longitude-signals with the Coast-Survey parties at Cambridge, Mass., and Saint Pierre, Newfoundland. At the same time, signals were exchanged between Saint Pierre and Brest, France, and between the latter station and Paris and Greenwich; the object being to obtain another determination of the difference of longitude between the fundamental points in Europe and America. The whole operation was undertaken by the Coast Survey, and will doubtless yield very valuable results.

The telegraphic apparatus of the Observatory, in charge of Professor Harkness, continues in excellent order; no changes have been made in it during the year. A new main switch-board is, however, much needed; the present one being far too small to contain all the wires. A time-ball has been dropped on the roof of the Observatory daily at noon, and time-signals have been distributed by the Western Union Telegraph lines to a large part of the country at the same instant. By an arrangement with the Western Union Telegraph Company, the Mutual Life Insurance Company of New York City receive from us our time, and a ball will be dropped at noon from a staff erected upon the top of their building at an elevation to be seen from all parts of the city and harbor, by which the time of the city and shipping can be accurately regu-

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lated. The clocks at the Navy Department and at the Army Signal-Office controlled by the Observatory clock have performed admirably; their error being usually much less than one second.

TRANSIT AND MURAL CIRCLE.

Since my last report, Professor Yarnall has been engaged as follows: Owing to sickness, he did not commence observing until the 1st of January of this year, when he began a series of observations with the mural circle, which he still continues. His observations have been upon series of stars, taken above and below the pole alternately, with a view of examining and possibly correcting some of the refraction-co-efficients; he has also observed many stars whose declinations were wanting to complete the places of stars already observed in right ascension, and has occasionally observed the moon when he could get the opportunity; as this was a special work of the transit circle. His time in office-hours has been given to the work on the General Catalogue, about one-half of which is now ready for the press. He has also given his attention to reducing and publishing the current work of the Observatory belonging to the instruments under his charge. In his computations upon the Catalogue, and otherwise, he has had the assistance of Professor Lockwood and Assistant Observer Skinner.

THE METEOROLOGICAL DEPARTMENT

Still continues in charge of Professor J. R. Eastman, U. S. N. The observations have been made by the watchmen with commendable care and regularity, at 0^h, 3^h, 6^h, 7^h, 9^h, a. m., and 0^h, 3^h, 6^h, and 9^h, p. m. The observations for 1870 have been prepared for publication, but, owing to the increase in Professor Eastman's work in the astronomical department, the observations for 1871 are still unfinished. With the assistance now provided, they will probably be finished by December. Many miscellaneous meteors have been observed, but the weather has not been favorable for observing either the August or November showers. An extended series of comparisons has been made during the year to determine the errors of the Troughton and Simms standard, and the dry, maximum and minimum thermometers. The corrections derived from these comparisons will be applied to the observations in 1871, and are almost identical with those obtained by a redetermination of the scale and freezing-point.

THEORY AND TABLES OF THE MOON,

in charge of Professor Simon Newcomb, U. S. N. The first part of this work, which comprises the calculation of the action of the planets on the motion of the moon by a new method, has made good progress. The effect of each of the four large planets—Mercury, Venus, Mars, and Jupiter—has to be determined separately. The heavy mechanical computations are about finished, and it only remains to examine and combine them into proper shape. The second part, comprising the comparison of Hansen's tables with observations before 1750, had been delayed by the want of accurate star-places for epochs so far back. This want is being filled by a complete redetermina-

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ion of the proper motions of the principal stars, including all which have been seen occulted by the moon. Very important help in this has been rendered by Dr. Auwers, the distinguished astronomer of Berlin, who has communicated the results of his re-reduction of Bradley's observations, extending from 1750 to 1860. Three young computers, Messrs. Parker Phillips, John T. Hedrick, and W. M. Brown, have been employed under the appropriation of $2,000 made for this work; the result has been very satisfactory.

The appropriation for transcribing the observations from the note-books for publication has enabled us to keep up with the printer's requirements for copy on the annual volume.

TRANSIT OF VENUS.

At the last session of Congress an appropriation was made for the purchase of instruments for the proper observation of the transit of Venus in 1874, to be expended under the direction of a commission, to be composed of the Superintendent and two professors of the Naval Observatory, the President of the National Academy of Sciences, and the Superintendent of the United States Coast Survey. Professors Simon Newcomb, U. S. N., and William Harkness, U. S. N., were detailed as the two profesors of the Observatory, and, at a meeting of the commission, the Naval Observatory was authorized to take charge of the details of the transit of Venus expedition. Experiments are being made and preparations are now in hand for completing contracts for the manufacture of the necessary instruments and planning the proper temporary observatories for the several stations to be occupied. This necessarily takes much of the time of the professors, but as legitimate work of such an institution it is cheerfully and zealously performed.

CHRONOMETERS.

In the last year, eighty chronometers have been received; thirty-four have been issued to sea-going vessels; three loaned to the northern-boundary expedition; and thirty-four sent to Negus, in New York, for repairs. There are ninety-seven on hand, including thirty on trial, all of which may be considered ready for service. Twenty-eight of these are selected for the Pacific surveying expedition.

The following officers have been on duty in the chronometer-department between the date of my report in October, 1871, and the present: Lieutenant-Commander George C. Remey, to August 2, 1872; Lieutenant-Commander C. H. Pendleton, to May 31, 1872; Lieutenant S. M. Ackley, from November 1, 1871, to June 22, 1872; Lieutenant-Commander J. D. Graham, from November 6, 1871, to August 10, 1872; and Lieutenant B. L. Edes, from April 3 to July 12, 1872. Those at present on duty are Commander James H. Gillis, (in charge,) from September 9, 1872; and Master Albert Ross, from August 12, 1872.

Owing to the exigencies of the service, officers could not be spared for duty at the Observatory to enable us to bring up the past history and records of the performance of the chronometers. It is very desirable that, at least, three officers should be attached to the chronometer-department to keep up the books and duties required for a proper system of care and record.

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THE LIBRARY.

The exchanges between the Observatory and its correspondents continue to be the chief source of increase to the library. Its exchange-list numbers more than seventy foreign astronomical and meteorological observatories, including, besides those in our own hemisphere, the chief observatories in Europe, at the Cape of Good Hope, in India, and in Australia. During the year, nearly two hundred acknowledgments of the receipt of valuable publications have been made to these and to other scientific institutions.

The editions of the annual volume of Astronomical and Meteorological Observations made in 1869, received from the Government press in March, and of the separate appendixes, No. I, Report of Solar Eclipse of December, 1870; No. II, Zones of Stars, observed from 1846 to 1849, have been widely distributed. During the present month, the Observatory is distributing its Report on the Return of Encke's Comet, 1871, (Appendix No. II of the volume for 1870, in press, published in advance of this volume.) The care of the library and of the distribution of the publications of the Observatory is in charge of Professor J. E. Nourse, who also assists in revising proof and in other duties of the Observatory.

Very respectfully, your obedient servant,

B. F. SANDS,
Rear-Admiral, Superintendent.

Commodore DANIEL AMMEN, U. S. N.,
Chief of Bureau of Navigation, Navy Department.

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GENERAL INTRODUCTION.

The Observatory was originally built as a depot of charts and instruments for the Navy, the work being done under the supervision of Lieutenant James M. Gilliss, U. S. N., and a very full account of it is given in his "Report on the plan and construction of the Depot of Charts and Instruments, with a description of the instruments," &c., made to the Secretary of the Navy in February, 1845, and published as Senate Document No. 114, Twenty-eighth Congress, second session. A more general description, illustrated by plans of the building and drawings of the principal instruments, is contained in the volume of Washington Observations for 1845; and an account of the changes made for the reception of the large Transit Circle, together with a description of that instrument, will be found in the volume of Washington Observations for 1865.

Position of the Observatory.—The latitude, deduced from observations made with the Mural Circle in 1845 and 1846 was $+ 38^\circ\ 53'\ 39''.25$;[1] and that value has been employed in the reduction of all observations made with the Mural Circle down to the present time. The observations made with the same instrument from 1861 to 1864, inclusive, give a latitude $0''.47$ less, viz, $+ 38^\circ\ 53'\ 38''.8$;[2] and this latter value is the one which has always been used in computing the published "Apparent North Polar Distances" obtained from observations made with the Transit Circle. It should be remarked, however, that in the published tables of "Right Ascensions, North Polar Distances, and Semi-Diameters of the Sun, Moon, and Planets, deduced from observations with the Transit Circle;" "Corrections to the Right Ascensions and North Polar Distances of the American Ephemeris, given by individual observations of stars with the Transit Circle;" and "Mean Places of Miscellaneous Stars, given by individual observations with the Transit Circle," the final North Polar Distances depend upon the position of the pole, determined from all the observations of circumpolar stars made with the Transit Circle during the same year as those contained in the tables in question. In interpolating tabular positions of the moon and planets, the longitude of the Observatory from Greenwich is assumed to be $5^h\ 8^m\ 12^s.0$.[3]

The point to which all differences of longitude measured from the Observatory are referred is the center of the dome. The most probable value of its latitude is $+ 38^\circ\ 53'\ 38''.8$; which has been determined from discussions of all the observations of circumpolar stars observed, both above and below the pole, with the Mural and Transit

[1] Washington Observations for 1845, Appendix, p. 116.

[2] Washington Observations for 1864, Introduction, p. xliv.

[3] In some previous volumes this longitude is erroneously given. All the tabular positions of the moon since 1860 have been computed with the adopted longitude $5^h\ 8^m\ 12^s.0$.

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Circles, during the years between 1861 and the present time. For the determination of its longitude from Greenwich, the following data are regarded as the most trustworthy. They were communicated to the Superintendent of the Observatory in an official letter from the Coast-Survey Office, dated August 10, 1872. The numbers preceding the differences of longitude are the years when they were measured:

	h.	*m.*	*s.*	*s.*
1866. Greenwich east of Foilhommerum - - -	0	41	33.29	± 0.10
1866. Foilhommerum east of Heart's Content - -	2	51	56.32	± 0.12
1866. Heart's Content east of Calais - - - - -	0	55	37.97	± 0.15
1857. Calais east of Bangor - - - - - - - -	0	6	0.31	± 0.05
1851. Bangor east of Cambridge - - - - - -	0	9	23.06	± 0.05
1867. Cambridge east of Washington - - - - -	0	23	41.11	± 0.03
Washington west of Greenwich - - - - -	5	8	12.06	± 0.23

The points of reference are, at Greenwich, the Transit Circle, and at Cambridge and Washington, the domes of the observatories. The large probable errors are due to personal equations.

In August, 1873, at the Portland meeting of the American Association for the Advancement of Science, Professor J. E. Hilgard, of the United States Coast Survey, read a paper in which he stated that the Coast Survey has now made three independent determinations of the difference of longitude between Europe and America; different lines of telegraph and different observers being employed on each occasion.

In 1867 (1866?) the Atlantic cable was used between Valencia and Heart's Content; in 1870 the French cables were used, coupled together in such a manner that signals were exchanged directly between Brest and Duxbury; and in 1872 the French cable was used from Brest to Saint Pierre, whence the signals were sent through the land-lines, via Sydney and the Provinces, to Cambridge and Washington. The results for difference of longitude between Greenwich and Washington are as follows:

	h.	*m.*	*s.*
1867 (?) - - - - -	5	8	12.11
1870 - - - - - -			12.16
1872 - - - - - -			12.10
Mean - - -	5	8	12.12

It will be observed that the result here given from the operations of 1867 (1866?) differs slightly from that communicated to the Observatory in 1872; but probably the latter value is to be preferred. The very close agreement of these results is remarkable, and leaves little doubt that this longitude is now well determined.

Since the Observatory was built, there have been a number of changes in the positions of its instruments; and in order to facilitate comparisons of the work done with them at different times, their co-ordinates, measured from the center of the dome, are

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given in the following table. The sign +, before a co-ordinate, indicates that the instrument to which it belongs is north or west of the center of the dome, while sign — indicates that it is south or east of that point:

	Diff. Lat.	Diff. Lon.	Diff. Lat.	Diff. Lon.
	Feet.	Feet.	″	s.
Transit Instrument:				
January, 1845, to September 2, 1864 . .	0.0	+ 41.	0.00	+ 0.035
Since October 1, 1864	0.0	− 42.9	0.00	− 0.036
Mural Circle:				
January, 1845, to September 15, 1845 . .	0.0	+ 32.	0.00	+ 0.027
Since October 1, 1845	0.0	− 33.9	0.00	− 0.029
Old Meridian Circle:				
January, 1845, to August, 1864 . . .	0.0	− 42.9	0.00	− 0.036
Prime Vertical Transit Instrument:				
Since January, 1845	− 45.4	0.0	− 0.45	0.000
Transit Circle:				
January 1, 1866, to June 5, 1869 . . .	0.0	+ 38.4	0.00	+ 0.032
Since October 1, 1869	0.0	+ 77.8	0.00	+ 0.066

Arrangement of work.—The system adopted at the time of the revival of the astronomical activity of the establishment in 1861 is still continued. Under this system, the observations with each instrument are directed by the officer having it in charge, who is held responsible for the proper performance of the work, and prepares the descriptions, explanations, and discussions of the observations contained in the annual volumes.

During the year 1872 the details for duty were as follows:

The Transit Circle was in charge of Professor William Harkness, U. S. N., who was assisted by Professor J. R. Eastman, U. S. N., and by Assistant Observers Edgar Frisby and Ormond Stone.

The Transit Instrument and Mural Circle were in charge of Professor Mordecai Yarnall, U. S. N., who made all the observations during the year, but was assisted in the reductions by Professor H. H. Lockwood and Assistant Observer A. N. Skinner.

The Prime Vertical Transit Instrument was not used during the year.

The Equatorial was in charge of Professor Asaph Hall, U. S. N., who was aided in observing by Assistant Observer A. N. Skinner.

In the Department of Chronometers, which includes the dropping of the time-ball at noon and the transmission of time-signals to the city through the police-telegraph, the following officers were on duty for the periods specified, namely: Lieutenant-Commander George C. Remey, U. S. N., from January 1 to August 2; Lieutenant-Commander J. D. Graham, U. S. N., from January 1 to August 12; Lieutenant-Commander C. H. Pendleton, U. S. N., from January 1 to May 31; Lieutenant S. M. Ackley, U. S. N., from January 1 to June 22; Lieutenant B. L. Edes, U. S. N., from April 3 to July 12; Master A. Ross, U. S. N., from August 14 to December 31; Commander James H. Gillis, U. S. N., from September 9 to December 31; Lieutenant Isaac Hazlett, U. S. N., from November 1 to December 31; Lieutenant F. W. Greenleaf, U. S. N., from November 15 to December 31.

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The meteorological observations were made, under the supervision of Professor J. R. Eastman, U. S. N., by the watchmen of the establishment, Messrs. Thomas Hays, Dennis Horigan, and Nicholas Cahill.

Mr. W. F. Gardner, instrument-maker, executed all necessary alterations and repairs to the instruments during the year.

Mr. Thomas Harrison, clerk and disbursing officer, had charge of the official correspondence and accounts of the establishment.

The Observatory, being a naval establishment, is under the general supervision of the Bureau of Navigation of the Navy Department.

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ASTRONOMICAL OBSERVATIONS

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THE TRANSIT CIRCLE.

During the year 1872 the Transit Circle was employed on the sun, moon, and planets, and a large list of miscellaneous stars whose places were required for the better determination of the latitude of the eclipse station of August, 1869, at Des Moines, for the reduction of observations made with the equatorial, and for use in Professor Newcomb's revision of the lunar theory. Only so many Nautical Almanac stars were observed as were necessary for the determination of azimuth and time.

Heretofore there has been no barometer in the transit-circle room, and the observers have been obliged to make use of that in the northwest room, more than one hundred feet distant, thus greatly increasing their already sufficiently severe labors. In order to obviate this a new standard barometer was purchased from Mr. James Green, of New York, and mounted in the transit-circle room in the beginning of October. A new chronograph, made by Messrs. Alvan Clark & Sons, of Cambridgeport, from designs by Professor Harkness, has also been obtained, and was brought into use on October 26. A stand upon which to mount the chronograph, a much-needed new desk, and two new standard thermometers, by Mr. James Green, of New York, complete the list of improvements in the transit-circle room during the year 1872.

THE OBSERVING-ROOM.

The interior of the observing-room measures 40 feet from north to south, and 28 feet 3 inches from east to west. Its height, from the floor to the under side of the shutters which cover the slit, is, at the ridge 23 feet 2 inches, and at the eaves 19 feet 6 inches. The ridge of the roof is placed due east and west. The slit opens to a width of 3 feet 9 inches, and extends downward to within 7 feet 4 inches of the floor. The portion in the roof is closed by means of four sliding shutters, while the portions in the north and south walls are each closed by a single door. The construction of the room is peculiar, its sides being formed of tinned iron 0.015 of an inch = 0.38 of a millimeter thick, shaded from the direct rays of the sun by light wooden louver work, as is more fully explained in the Washington Observations for 1870, page XIV. This construction was adopted in order to secure identity of temperature between the internal and external air, and is probably the best possible for that purpose.

In removing the Transit Circle to this room its latitude was not changed, but it is now 77.8 feet = $0^s.066$ west of the center of the dome, while from January 1, 1866, to June 5, 1869, it was only 38.4 feet = $0^s.032$ west of the center of the dome.

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THE TRANSIT CIRCLE.

A description of the Transit Circle, together with an investigation of its constants, is contained in the Washington Observations for 1865. The following briefer account will probably suffice to render intelligible the explanation of the observations and their reduction:

The instrument was made in 1865 by Pistor & Martins, of Berlin; is of the reversible pattern; and is mounted upon two massive marble piers, with its axis 8 feet 2 inches above the floor.

The telescope has a clear aperture of 8.52 inches, and a focal length of 12 feet and 0.7 of an inch. The axis is cast in a single piece, into which the steel pivots, 2.09 inches in diameter and 1.70 inches long, are screwed. The Ys are of gun-metal, and their bearing surfaces are 0.28 of an inch wide. The distance between them, measured from center to center of the bearing surfaces, is 3 feet 9.1 inches. The telescope tube is made in two similar halves, which are bolted to opposite sides of a cube, measuring 16.64 inches on each edge, which forms the center of the axis.

There are two circles, identical in form and size, which are attached to the two extremities of the axis. Each of them has ten arms, is cast in a single piece weighing about eighty pounds, and is 45.30 inches in diameter at its outside edge, and 43.40 at the graduation. The circle on the clamp end of the axis is designated as circle A, and has inlaid upon its face two bands of silver, each 0.13 of an inch wide, the inner one of which is graduated to every 2′, and the outer one to every 10′. The circle on the other end of the axis is designated as circle B, and has inlaid upon its face a single band of silver, 0.13 of an inch wide, which is graduated to every 2′. The graduation on each of these circles is numbered from 0° to 360°, the numbers increasing from left to right; and, as they face in opposite directions, when the telescope is turned in zenith distance the reading of one circle increases while that of the other diminishes. The circles are attached to the axis in such a manner that they may be set to give any desired reading when the telescope is pointed to the zenith. Each of them is provided with four micrometer microscopes for reading its fine graduation; but the same microscopes are not always employed with the same circle, because they are attached to the piers, and reversing the instrument interchanges them and the circles. Each pier carries four microscopes, placed at the extremities of two diameters, which intersect each other at right angles, and each of which makes an angle of 45° with the vertical. The microscopes on the western pier are marked I, II, III, IV; those on the eastern pier, V, VI, VII, VIII. The readings of the former diminish, and those of the latter increase, as the telescope moves from the zenith toward the south. Assuming distinct vision with the naked eye to be obtained at a distance of ten inches, these microscopes magnify forty-five diameters. Each revolution of their screws is equal to 30″, and their micrometer heads are divided to 0″.5. In addition to the microscopes already mentioned, each pier carries another, which is employed as a pointer for setting the telescope by means of the coarse graduation on circle A. These microscopes magnify twenty-three diameters, and are placed at the extremities of horizontal radii to the circles; that on the western pier being to the north, and that on the eastern pier to the south of the

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axis. The horizontal microscope in actual use is always the one at the clamp end of the axis, that being the position of circle A.

In the eye-piece of the telescope is a fixed reticule of fifteen vertical and two horizontal wires. The latter have a space of about 8″ between them, and are used principally to mark the center of the field of view. The notation and approximate equatorial intervals of the vertical wires are as follows:

TABLE I.

	s.		s.		s.
I	+ 36.7	C_1	+ 4.1	D_1	− 8.1
II	+ 24.5	C	+ 2.0	D_2	− 9.7
III = B_1	+ 12.2	IV = C_3	0.0	V = D_3	− 12.2
B_2	+ 9.7	C_4	− 2.0	VI	− 24.5
B_3	+ 8.1	C_5	− 4.1	VII	− 36.7

The wires B_1 to B_3 are called set B; C_1 to C_5, set C; and D_1 to D_3, set D. In reference to the notation, it should be observed that the wire first crossed by an equatorial star is always designated wire I; consequently, when the instrument is reversed, the notation of the wires is also reversed.

In addition to the fixed reticule, the eye-piece contains a right-ascension and a zenith-distance micrometer, in each of which the readings increase as the wire moves from the micrometer head. The right-ascension micrometer serves for determining the collimation constant, and is sometimes used for obtaining the time of transit of close circumpolar stars when clouds prevent their being seen at the fixed wires. It is provided with a single vertical wire, moved by a micrometer screw, each revolution of which measures $1^s.024$. The zenith-distance micrometer carries four horizontal wires, the middle two of which are distant from each other about $4\frac{1}{2}''$, and the center of the space between them is regarded as the standard middle wire. The other two are placed at a distance of about ten revolutions of the screw on each side of the middle wire; that nearest the micrometer head being designated wire A, the other wire B. When the telescope looks south the micrometer head is below the eye-piece if the clamp is west, above it if the clamp is east. An increase of micrometer reading is subtractive from the reading of circle A, and additive to that of circle B.

The illumination of the field of view is so arranged that the light can be made of any desired intensity, and the wires can be shown either dark on a bright ground, or bright on a dark ground. In the case of bright-field illumination the color of the light can be varied from deep red, through light red, yellow, and light blue, to dark blue.

SUBSIDIARY APPARATUS.

Collimators.—The Transit Circle is furnished with two collimators, having object-glasses of 35.2 inches focal length, and 2.13 inches clear aperture. Their eye-pieces produce a magnifying power of 67 diameters. The ends of each collimator project 7 inches beyond the bearing points of its Ys, which latter are only 21 inches apart. The field of view of collimator A contains a single vertical wire, crossed at its middle point

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by a single horizontal wire. The field of view of collimator B contains a pair of cross-wires, movable by means of a micrometer screw. Each of these wires makes an angle of 12° with the vertical, and, consequently, at their intersection they make an angle of 24° with each other. The positions of the collimators may be interchanged, but collimator A is usually mounted to the south, and collimator B to the north of the Transit Circle. A pair of delicate levels is provided, by means of which the axes of sight of the collimators may be placed truly horizontal.

Each side of the central cube of the Transit-circle telescope is pierced with a circular opening, 2.4 inches in diameter, which is closed by a cap screwing into it. By removing these caps, and setting the telescope vertical, the wires of either collimator may be seen from the other.

The Standard Sidereal Clock was made by Kessels, of Altona, and is marked No. 1324. For the purpose of securing it as much as possible against changes of temperature, it is inclosed in a heavy masonry vault situated in the clock-room, which adjoins the observing-room on its eastern side. When first placed there the steel parts of its works showed a strong tendency to rust, and, in order to obviate this, the vault was lined with plates of tinned iron. The rusting still continuing, a small stove was put in the clock-room, and a fire is now kept there all the year through. This insures the dryness of the air, and the rusting is entirely prevented. The clock has a gridiron pendulum, which maintains a very steady rate. It is included in the galvanic system of the Observatory by means of two wires, which run from the main switch-board, respectively, to the point of suspension of the pendulum, and to a globule of mercury situated near the middle of the pendulum-rod. A platinum point projecting from the rod touches the surface of the globule at each vibration, thus closing the circuit, and causing the beats of the clock to be registered on any chronograph with which it may be connected. The globule of mercury is kept quite small, and adjusted to such a height that the platinum point just grazes its surface without causing any sensible vibration of its mass. A fuller description of the apparatus is given in the Washington Observations for 1867, Appendix I, page 10.

The rating of this clock is effected by means of small weights placed in a little cup attached to the pendulum-rod about the middle of its length. The addition of 100 grains causes the clock to gain 9.7 seconds per day.

The Counting Clock is placed on the pier of the south collimator in the Transit-circle room. It was made by Parkinson and Frodsham, of London; has a mercurial pendulum; and is regulated to sidereal time. Its rating is effected by means of small weights placed on the top of the jar containing the mercury. The addition of 100 grains causes it to gain 2.9 seconds per day.

This clock contains a delicate spring, furnished with a platinum point, resting upon a small plate of the same metal; the whole so arranged that at the beginning of each minute an arm attached to the arbor of the seconds-hand raises the spring and separates the point from the plate for a period of one second. Wires are attached to this apparatus so that when desired it may be included in the same galvanic circuit with the Kessels clock, and when such is the case it breaks the circuit for a single second once in each minute.

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The Standard Mean-Time Clock is situated in the chronometer-room, but the officer having charge of the Transit Circle is responsible for furnishing its errors and rates. It was made by Parkinson & Frodsham, of London, has a mercurial pendulum, and is probably one of the best time-pieces in existence. Its rating is effected by means of small weights placed on top of the jar containing the mercury. The addition of 100 grains causes it to gain 2.9 seconds per day. To test the compensation of its pendulum the following observations were made:

Date.	Clock Correction.	Interval in Days.	Rate per Day.
d.	s.	d.	s.
1870. April 18.5 . .	+ 8.15	185.9	— 0.122
October 21.4 . .	— 14.52	183.0	— 0.106
1871. April 22.4 . .	— 33.93	179.9	— 0.071
October 19.3 . .	— 45.93		

The slight, but constant, retardation of rate is probably owing to progressive thickening of the oil. In order to eliminate it we take the mean of the first and last rates, and thus find for the rate from April to October — $0^s.097$, while the rate from October to April is — $0^s.106$. Bearing in mind that the mean temperature at Washington is above the average from April 21 to October 19, and below the average from October 19 to April 21; and also remembering that the room in which this clock is kept is not artificially heated, it appears that the compensation is perfect.

The Chronograph has a barrel, 8.15 inches in diameter and 24.0 inches long, which revolves once in each minute, and will run continuously for four hours without requiring the paper to be changed. It has but a single pen, by which both the clock signals and those of the observer are recorded.[1] The record is made upon ordinary writing-paper with an ink which does not freeze at 0° F. It is composed of

Alcohol - - - - - - - - - - - - 2 fluid ounces.[2]
Water - - - - - - - - - - - - - 4 fluid ounces.
Concentrated Glycerine - - - - - - 1 fluid drachm.
Crystalized Aniline Blue - - - - - - 40 grains.

If desired, 400 grains of white sugar may be substituted in place of the glycerine. The solution must be filtered before it is used. The pen is of glass, and consists of a tube, 0.25 of an inch in external diameter and 1.15 inches long, to which is joined a bulb 0.65 of an inch in diameter; the lower end of the bulb being drawn out to a capillary tube 0.003 of an inch in internal diameter. The total length of the pen is about 2.5 inches. The bulb being filled with ink, when the pen is allowed to rest upon the paper by its own weight, it produces a fine sharp line.

The Barometer and Thermometer.—The barometer employed was made by I. Newman, of London, and is a standard of the cistern form, with a tube whose internal diame-

[1] This chronograph was only employed till October 25, after which the new one was brought into use.
[2] One fluid ounce is equivalent to 28.5 cubic centimeters, and one fluid drachm to 3.56 cubic centimeters

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ter is 0.532 of an inch. It is the one used for the regular meteorological observations, and is situated in the northwest room, on the first floor of the main building. The thermometer, a standard by James Green, of New York, is suspended outside the north front of the observing-room. It is 11 feet above the surface of the ground, and is protected from radiation by a double shield of bright tinned-iron plate.

The Sympiesometer.—This instrument was made by James Green, of New York, and is designed to lessen the number of observations and computations necessary for determining the correction to the refraction on account of the density of the air. It consists of a vertical tube, the top of which expands into a bulb, while the bottom is bent round in the form of the letter U. The large arm or cistern of the U holds sulphuric acid, and is closed by connection with an air-tight bag of oiled silk. The rest of the tube contains air, the quantity of which is so adjusted that in the hottest weather it nearly fills the vertical tube, while in the coldest weather the acid rises nearly to the bulb. If, now, the density of the fluid were zero, the density of the air within the bulb and tube would be the same as that of the external air. But, the sulphuric acid being quite heavy, its height in the tube of the sympiesometer is a function of any two of the three quantities, barometric pressure, temperature, and density of the external air. As, at all zenith distances at which it is worth while to observe for the determination of star positions, the refraction may be regarded as a function of the zenith distance and the density of the air simply, the datum wanted is the density of the external air, which must be expressed as a function of the height of the sympiesometer and barometer. Let

B = height of barometer.

τ = temperature, counted from the absolute zero.

D = actual density of external air.

D_0 = density of air when the surfaces of the fluid in the tube and in the cistern are on the same level.

c = constant of elasticity of air.

l = total capacity of tube and bulb, counted from the point at which the surfaces of the acid in the cistern and tube are on the same level, measuring that capacity by the length to which it would be necessary to extend the tube in order that it might hold as much as the bulb.

h = height of internal surface of acid, counted from the same point with l.

a = specific gravity of acid, increased in the ratio of the bore of the tube to that of the cistern, specific gravity of mercury being unity.

B' = pressure of the confined air, in inches of mercury.

Then, from well-known properties of elastic gases, we derive the equations,

$$B = c\,D\,\tau$$

$$B' = c\,D_0\,\tau\,\frac{l}{l-h}$$

$$B' = B - ah$$

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From the last two equations,

$$B = ah + \frac{c\,D_0\,\tau\,l}{l-h}$$

Substituting for τ its value from the first equation, we find,

$$D = D_0\left(\frac{l}{l-h}\right)\left(\frac{B}{B-ah}\right)$$

Thus, D is expressed as a function of the height of the fluid in the sympiesometer and of the height of the barometer. Let us put

$$B = B_0 + \beta$$

B_0 being the mean height of the barometer, and β its small changes. Then, developing to the first power of β, we have,

$$\frac{B}{B-ah} = \frac{B_0}{B_0-ah} - \frac{ah\beta}{(B_0-ah)^2}$$

To estimate the value of the last term of this equation we remark that

The value of a is, roughly, about - - - - - - - - -	$\frac{1}{8}$
The value of β seldom exceeds, during fine weather, -	$\pm$ 0.4 inch.
The value of h rarely exceeds - - - - - - - - - -	8 inches.
While we may put B_0 - - - - - - - - - - - - - -	= 30.15

Consequently, the last term of the equation will seldom amount to $\frac{1}{2000}$, and may usually be neglected. We therefore have

$$D = \frac{B_0\,l\,D_0}{(B_0-ah)\,(l-h)}$$

in which the density of the air is expressed as a function of the observed height of the sympiesometer, and of determinable constants.

As it is doubtful whether the invariability of a and D_0 can be relied on for long intervals of time, it has been deemed best not to attempt the direct determination of D, but to find the value of the sympiesometer scale by comparison with the results obtained from the thermometer and barometer. A scale is attached to the sympiesometer, the reading of which gives approximately the logarithm of the density of the air, the density at 29 inches and 100° being unity; and a table of corrections to this scale is deduced from comparisons with the barometer and thermometer at various densities of the air.

USE OF THE TRANSIT CIRCLE.

Position of Axis.—The plan of work with the instrument is based on the assumption of its reversal at the beginning of each calendar year, and the use of a single circle

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in an invariable position, with a single set of four microscopes during each year. The circle used is always so set that the polar distances of the stars observed depend on different circle divisions in different years. During the year 1872 the clamp end of the axis was toward the west.

Adjustment for Focus.—The wires in the field of view of the eye-piece of the telescope are placed in the principal focus of the object-glass by means of a cap made for the purpose. This cap fits over the object-glass, and contains a lenticularly-shaped opening bounded by the arcs of two circles, each having a radius equal to half the clear aperture of the object-glass, and each passing through the center of the other. As one of these arcs coincides with the outer margin of the object-glass, the other necessarily passes through its center, and the whole opening is on one side of that center. The lenticular shape was chosen in order to reduce the effect of diffraction to a minimum. The telescope being pointed to the nadir, this cap is put upon it with its opening to the north, and the micrometer reading for coincidence of the mean wire with its image is found as in determining a zenith-point correction. The cap is then turned around 180°, so as to bring its opening to the south, and the reading for coincidence is again found. When the telescope is correctly focused these two readings must be identical, and the eye-piece is shifted till such is the case. Care is taken to make this adjustment at a time when the temperature of the observing-room is standing steadily at about 54° Fahrenheit, that being the mean annual temperature at Washington.

Magnifying Power.—The Transit Circle is provided with five positive eye-pieces, magnifying respectively 135, 158, 186, 279, and 395 diameters. That magnifying 186 diameters is the one habitually used.

Arrangement of Work.—As a general rule, one observer is charged with all the observations to be made during a definite twenty-four hours, which is considered the "observing-day," and usually begins at 9 a. m.; but when a special observation is to be made at an earlier hour in the morning, the observers are permitted to arrange among themselves to have the tour of duty commence sooner. An isolated observation occurring at an inconvenient hour for the regular observer of the day is occasionally assigned to another. An observer who has been on duty till 1 a. m. is always excused from attendance at the Observatory for the next 30 hours.

The usual observing hours are from 9 a. m. to 3 p. m., and from 9 p. m. to 1 a. m.; but it is often found necessary to vary them. If the weather permits, the moon is always observed at her meridian passage, and when this occurs later than 1 a. m. the observer is allowed considerable latitude in the time of doing his night's work. On Sundays the only observations regularly made are those of the moon, with the accompanying determinations of time and instrumental constants. Whenever special observations are required, the necessary orders are given by the officer in charge of the instrument.

In fine weather two groups of observations are made during each observing-day; the mean of one group occurring about noon, the mean of the other about 11 p. m.; and the interval between the two being not far from twelve hours. When the moon crosses the meridian later than 1 p. m., the mean of the night group occurs later than 11 p. m., unless, indeed, there are two night groups, which is sometimes the case. In order to

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obtain right ascensions of the close circumpolar stars, it is necessary to consider the azimuth as invariable during the whole of each observing-day; but the collimation, level, and zenith-point corrections are habitually determined as nearly as possible at the middle of every group of observations. Thus, with the exception of the azimuth, none of the instrumental constants are trusted for more than about three hours on each side of the instant at which they are actually determined.

As many as eighty-six observations have been made by a single observer in less than twenty-four hours; but such a feat is entirely exceptional, and in this climate half that amount of work, done habitually, would soon destroy the health of the strongest man. However, experience has shown that each observer should make not less than 25 observations of celestial objects, if it is clear during the whole 24 hours that he is on duty, or not less than 20 observations if it is only clear during the evening. Reflection observations are counted double. As the average cloudiness at Washington is fifty per cent. and the instrument is worked whenever the weather permits, this gives a total of from 3 500 to 4 000 observations per year.

Mode of Observing.—A galvanic current from the Kessels clock works the chronograph pen, and all observations of time are made by the aid of its beats. Hence, when an observer comes on duty, his first care is to see that the Kessels and counting clocks are together, and that their beats coincide. If they are not in that condition he puts them so by adjusting the pendulum of the counting clock. The use of this latter clock is twofold, viz: 1, it serves to indicate the second corresponding to each beat of the chronograph pen;[1] and, 2, when included in the galvanic circuit it records the beginning of each minute on the chronograph sheet by causing the pen to omit the mark corresponding to 0 seconds.

The general principle adopted in using the Transit Circle is to bring the proper division of circle B as accurately as possible under the zero of its micrometer microscopes, and then to measure with the zenith-distance micrometer of the telescope the space between its zero point and the position actually occupied in the field of view by the image of the object observed. The subdivision of the intervals between consecutive graduations on circle B is thus thrown entirely on the zenith-distance micrometer of the telescope, and as the arc measured by the micrometer microscopes rarely exceeds 10″ their errors of run are neglected. The graduation of circle B is so much better than that of circle A, that it only is employed in measures of zenith distance; and in order to make these measures depend upon different divisions in different years, the position of circle B upon the axis of the instrument is changed at the beginning of each alternate year. Circle A is used only to indicate the degrees and minutes of zenith distances, and its position upon the axis is never changed. If a collimating eyepiece is applied to the telescope, its zenith-distance micrometer set at 35 revolutions, and the whole instrument turned until the micrometer wires cover their own images reflected from a basin of mercury, the reading of the horizontal microscope of circle A is always 179° 56′, and some division of circle B is always very nearly under the zero of its micrometer microscopes.

[1] All observations are made in time of the Kessels clock, but, as it is in a different room from the observer, the latter cannot see its face, and only hears its beats as repeated by the chronograph.

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Let

R = reading of horizontal microscope of circle A when the telescope points to the zenith.

φ = latitude of transit circle.

δ = declination of object to be observed.

r = refraction of object to be observed.

Then, when the clamp is west, the telescope must be so set that the horizontal microscope of circle A reads:

For a direct observation, - - - - - - $R - \varphi + \delta \pm r$

For a reflection observation, - - - - - $180^\circ + R + \varphi - \delta \mp r$

If the clamp is east, the settings will be,

For a direct observation, - - - - - - $R + \varphi - \delta \mp r$

For a reflection observation, - - - - - $180^\circ + R - \varphi + \delta \pm r$

If the true value of φ were substituted in these formulæ, whenever the computed setting was not exactly an even minute, it would be necessary to set on the *nearest* even minute. In practice it is found much more convenient always to set on the *next less* even minute; and, in order to do so without causing the zenith-distance micrometer to measure more than half the distance between two consecutive divisions of circle B, a fictitious value of the latitude, differing from the true value by half the distance in question, is used. The fictitious latitude is 1′ greater than the true one for a reflection observation with clamp west, or for a direct observation with clamp east; and it is 1′ less than the true one for a direct observation with clamp west, or for a reflection observation with clamp east. The formulæ actually employed for computing the settings are, therefore,

For a direct observation, clamp west, - - - - - - - $321^\circ\ 3'.4 + \delta \pm r$

For a reflection observation, clamp west, - - - - - $218^\circ\ 50'.6 - \delta \mp r$

For a direct observation, clamp east, - - - - - - - $38^\circ\ 50'.6 - \delta \mp r$

For a reflection observation, clamp east, - - - - - - $141^\circ\ 3'.4 + \delta \pm r$

in which r must be taken with the upper sign for an object south, and with the lower sign for an object north of the zenith. For the moon, r must be made equal to the sum of the refraction and parallax. For an object below the pole, $180^\circ - \delta$ must be substituted instead of δ.

For faint objects it is necessary to know not only the reading at which the circle must be set, but also the exact reading of the zenith-distance micrometer for the point at which the object will enter the field of view. No matter whether the clamp is east or west, this is computed by means of the formula,

$$\text{Micrometer Reading} = 39 \text{ revolutions} - \frac{\varepsilon}{R}$$

in which ε is the excess of the computed circle reading above the next less even minute, and R is the value of one revolution of the micrometer screw. If the computed circle reading is exactly an even minute, the object will enter the field of view at 39 revolutions of the micrometer

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In the following paragraphs it is frequently stated that a star or planet, or the limb of the sun or moon, is bisected by the zenith-distance micrometer of the telescope. This form of expression is not quite accurate, and is only used for the sake of brevity. The idea intended to be conveyed is, that the zenith-distance micrometer is moved until the space included between its middle pair of wires is bisected by the image of the star or planet, or by the image of the limb of the sun or moon. Some of the observers find it difficult to see the images of very faint objects between the middle pair of wires, and prefer to bisect them with wire A or wire B. These latter wires are also used to avoid running the micrometer screw over inconveniently long distances, when observing two objects having nearly the same right ascension, but differing from two to five minutes in declination. Special care is taken to make all bisections by moving the micrometer wires away from the head, and thus causing the screw to act against the opposing springs. The same precaution is observed in reading the micrometer microscopes of the circles. The readings of the zenith-distance micrometer are taken from the self-registering indexes after the completion of each observation.[1]

To make a complete observation of all four limbs of the sun requires three persons, and the process is as follows: The observer on duty for the day extracts from the almanac the right ascension and declination of the sun's center for the time of its transit, and also its apparent semi-diameter. With these elements he computes the readings at which circle A must be set, in order to point the telescope respectively to the north and south limbs of the sun, and having recorded them on a slip of paper, he hands it to the assistant who is to be stationed at the horizontal microscope of circle A. A paste-board cap, with an aperture three inches in diameter, is placed over the object-glass of the telescope; a shade-glass is placed on the eye-piece; the chronograph is started; the telescope is set to the proper position for observing the sun's center; and the observer, with the chronograph key in his hand, stations himself at its eye-end. The two assistants are now standing at the shutter ropes, and at the instant the clock indicates two minutes before the time of transit of the sun's center, they open the shutters, and then take their stations, one at the horizontal microscope of circle A, the other at the micrometer microscopes of circle B. The preceding limb of the sun is now well into the field of view, and its transit over the wires B_1 to D_3 is observed by tapping on the chronograph key. Next, the assistant at circle A points the telescope to one of the horizontal limbs of the sun, clamps, and, by means of the tangent screw, brings the proper division of circle B as nearly as possible under the zero of its micrometer microscopes. The limb is then bisected with the zenith-distance micrometer of the telescope at wire I, and again at wire II, and, while that is being done, the assistant at circle B reads its four micrometer microscopes. Then the assistant at circle A unclamps, points the telescope to the other horizontal limb of the sun, clamps again, and, by means of the tangent screw, brings the proper division of circle B as nearly as possible under the zero of its micrometer microscopes. This limb is then bisected with the zenith-distance micrometer of the telescope at wire VI, and again at wire VII; and while that is being done, the assistant at circle B reads its four micrometer microscopes. Finally, the assistant at circle A again unclamps, and the observer himself

[1] Washington Observations for 1865. Description of Transit Circle, § 30.

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points the telescope to the sun's center, and observes the transit of its following limb over the eleven wires from B_1 to D_3. The shutters are then closed, and the observation completed by reading the sympiesometer, external thermometer, barometer, and attached thermometer. It will be noticed that particular care is taken to expose the instrument to the direct rays of the sun for as short a time as possible, and even then the circles are always completely shaded by the platform and steps used for ascending to the eye-piece of the telescope when the nadir point is to be observed.

Observations of the moon are made in two ways. If the first limb is the full one, the observer takes the time of transit of the center from the almanac, and, going to the telescope about three minutes before that time, he sets the zenith-distance micrometer to read 34 revolutions, and then sweeps for the moon's limb. Having found it, he observes its transit over the wires B_1 to D_3. Then, as rapidly as possible, he turns the telescope till the full limb (north or south) is bisected by the zenith-distance micrometer; goes to the clamp-screw; clamps, looks into the horizontal microscope of circle A, and turns the tangent screw until the division of circle B nearest the zero of its microscopes is brought approximately under them; resumes his place at the telescope, and with the zenith distance micrometer bisects the limb at wires III, IV, and V, or sometimes at wires II, III, IV, V, and VI. Finally, the observation is finished by reading the micrometer microscopes of circle B, and the degrees and minutes indicated by the horizontal microscope of circle A. Sometimes the telescope is not so set as to bring any division of circle B approximately under the zero of its microscopes, and in such cases the divisions lying nearest on each side of the zero are read.

If the second limb of the moon is the full one, the observer takes the time of transit of the center from the almanac as before, and, in addition, computes the reading at which circle A must be set in order to point the telescope to the north or south limb, whichever happens to be full. Five minutes before the time of transit, he sets the telescope in the computed position, clamps, and reads the micrometer microscopes of circle B. When the moon comes into the field of view, he observes it with the zenith-distance micrometer, in the manner already explained; and then unclamps, points to the moon's center, and finishes by observing the transit of its second limb over the wires from B_1 to D_3.

The larger planets are observed in the following manner: The right ascension and declination of the planet's center are taken from the almanac, the reading of circle A, at which the telescope must be set, is computed, and the instrument is clamped in that position. When the planet enters the field of view, its northern limb is bisected with the zenith-distance micrometer at wire I, and its southern limb at wire II. The transit of its preceding limb is observed over wires B_1, B_2, B_3, D_1, D_2, D_3; and the transit of its following limb, over wires C_1, C_2, C_3, C_4, C_5. The observation is finished by again bisecting the southern limb with the zenith-distance micrometer at wire VI, and the northern limb at wire VII. Thus, both the horizontal and vertical diameters are measured, and the observations of each limb are perfectly symmetrical with respect to the middle wire.

Planets which do not present a well-defined disk are observed in the same manner as fixed stars.

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Fixed stars are observed in different ways, the mode adopted depending upon circumstances:

α. If the star is within 5° of the pole, its transit is observed by eye and ear over the wires of set C, and it is bisected with the zenith-distance micrometer at wires C_2, C_3, C_4; or sometimes at each of the wires from C_1 to C_5.

β. If the star is situated between 5° and 20° of polar distance, its transit is observed by the chronographic method over the wires of set C; and it is bisected with the zenith-distance micrometer at any two of the wires B_1, B_3, D_1, D_3; preference being given to the combinations B_3, D_1, or B_1, D_3; which make the observation symmetrical with respect to the middle wire.

γ. If the polar distance of the star exceeds 20°, its transit is observed by the chronographic method over all the wires from B_1 to D_3; and it is bisected with the zenith-distance micrometer at any two of the wires I, II, VI, VII; preference being given to the combinations II, VI, or I, VII, which make the observation symmetrical with respect to the middle wire. Sometimes stars are bisected at each of the wires I, II, VI, VII.

δ. In the case of double stars, the right ascension of one component is observed over the wires B_1, B_2, B_3, D_1, D_2, D_3, and that of the other, over the wires C_1 to C_5. Bisections with the zenith-distance micrometer are made, of one component at wires I and II, and of the other component at wires VI and VII. The observations of right ascension are therefore symmetrical, and those of zenith distance unsymmetrical, with respect to the middle wire.

ε. Sometimes on account of clouds, or other untoward circumstances, observations are unavoidably made unsymmetrical with respect to the middle wire, both in right ascension and zenith distance.

In observing transits by eye and ear, care is taken to use the beat of the chronograph pen, and not the tick of the counting clock. Whenever it is necessary to stop the chronograph, it is done about 1 second, and the hour and minute corresponding to the preceding 0 seconds is recorded on the sheet from the face of the counting-clock. As there is generally only a single record in each case, errors of a second, or of a minute, sometimes occur. It will be noticed that the method of observing all objects more than 5° from the pole is such as to occupy the observer's attention with the determination of but one co-ordinate at a time.

Wire intervals.—The equatorial intervals of the fixed vertical wires in the eye-piece of the telescope were determined from observations made between August 2 and August 18, 1871. Sixteen stars were employed, all situated within 20° of the pole, and the total number of sets of transits observed was twenty. The results are as follows:

TABLE II.

s.	s.	s.
$B_1 = +\ 12.240$	$C_1 = +\ 4.095$	$D_1 = -\ 8.167$
$B_2 = +\ 9.706$	$C_2 = +\ 2.023$	$D_2 = -\ 9.704$
$B_3 = +\ 8.191$	$C_3 = +\ 0.012$	$D_3 = -\ 12.260$
	$C_4 = -\ 2.049$	
	$C_5 = -\ 4.088$	

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As already explained, the transits of objects more than 20° from the pole are observed over all these wires, but, in reading off the chronograph sheets, C_1 and C_5 are rejected. The remaining nine wires are considered the standard set, and the numbers given above are the equatorial intervals of each wire from the mean of the standard set.

Zenith-distance Micrometer Screw.—The value of a revolution of the zenith-distance micrometer screw was determined in 1872, in the following manner: The telescope being pointed toward one of the collimators, the micrometer was set at 25.25 revolutions, and then, by means of the tangent screw, the telescope was moved till the center of the space between the middle pair of micrometer wires coincided as accurately as possible with the image of the horizontal wire of the collimator. This being done, five readings of the micrometer were made upon the collimator wire, and at the same time the circle was read by two assistants; one reading microscopes V and VI, the other, microscopes VII and VIII. As in general the circle divisions did not fall exactly under the zeros of the microscopes, the divisions lying nearest on each side of these zeros were read in order to eliminate errors of runs. Then the micrometer was set at 30.25 revolutions, and the process just described was repeated; and so on, at every fifth revolution, up to 45.25. Finally, in order to eliminate any possible small change in the position of the collimator while these operations were in progress, the measures were repeated in reverse order, beginning at 45.25 revolutions and ending at 25.25 revolutions. The observations are given in Table III. Throughout the whole series the telescope micrometer was read by Professor Harkness; microscopes VII and VIII by Professor Eastman; and microscopes V and VI by Assistant Observer Frisby.

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TABLE III.

Reference Number.	Observed Circle Reading.	Corrected Circle Reading.	Interval by Circle.	Mean of Micrometer Readings.	Interval by Micrometer.	One Revolution of Screw.
	° ′ ″	″	″	r.	r.	″
January 6, 1872.—Temperature, 42° F.						
1	89 49 29.54	29.55		25.313		
			74.65		4.933	15.133
2	50 44.10	44.20		30.246		
			76.33		5.016	15.217
3	52 0.30	0.53		35.262		
			78.94		5.141	15.355
4	53 19.30	19.47		40.393		
			74.15		4.863	15.253
5	54 33.71	33.62		45.256		
			73.63		4.788	15.377
6	54 33.36	33.45		45.241		
			79.73		5.211	15.297
7	53 19.65	19.82		40.453		
			77.09		5.002	15.412
8	51 59.86	60.09		35.242		
			77.00		5.023	15.303
9	50 42.90	43.00		30.240		
10	89 49 25.99	26.00		25.217		
January 8, 1872.—Temperature, 32°.5 F.						
1	89 54 31.72	31.81		45.254		
			73.94		4.797	15.414
2	53 17.70	17.87		40.457		
			80.53		5.205	15.473
3	51 57.11	57.34		35.252		
			77.11		5.015	15.376
	50 40.14	40.23		30.237		
			76.51		4.995	15.317
5	49 23.71	23.72		25.242		
			76.13		5.022	15.159
6	49 23.54	23.55		25.239		
			76.41		4.986	15.325
7	50 39.58	39.68		30.261		
			80.45		5.219	15.415
8	51 55.86	56.09		35.247		
			72.28		4.765	15.169
9	53 16.37	16.54		40.466		
10	89 54 28.73	28.82		45.231		
January 10, 1872.—Temperature, 40°.0 F.						
1	89 49 26.09	26.10		25.293		
			75.46		4.994	15.111
2	50 41.46	41.56		30.287		
			76.09		4.954	15.359
3	51 57.42	57.65		35.241		
			79.42		5.198	15.279
4	53 16.90	17.07		40.439		
			73.02		4.788	15.251
5	54 29.99	30.09		45.227		
			73.96		4.864	15.213
6	54 30.26	30.36		45.295		
			79.39		5.136	15.457
7	53 16.21	16.40		40.431		
			77.12		5.028	15.338
8	51 56.78	57.01		35.295		
			76.28		5.006	15.248
9	50 39.71	39.89		30.267		
10	89 49 23 61	23.61		25.261		

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TABLE III—Continued.

Reference Number.	Observed Circle Reading.	Corrected Circle Reading.	Interval by Circle.	Mean of Micrometer Readings.	Interval by Micrometer.	One Revolution of Screw.
	January 11, 1872.—*Temperature*, 40°.0 F.					
	° ′ ″	″	″	r.	r.	″
1	89 53 50.26	50.41		45.251		
			74.29		4.768	15.581
2	52 35.92	36.12		40.483		
			80.32		5.228	15.363
3	51 15.65	15.80		35.255		
			76.74		4.999	15.351
4	49 59.05	59.06		30.256		
			76.87		4.980	15.436
5	48 42.19	42.19		25.276		
6	48 41.96	41.96		25.254		
			75.90		4.990	15.210
7	49 57.85	57.86		30.244		
			76.52		5.001	15.302
8	51 14.23	14.38		35.245		
			79.26		5.182	15.295
9	52 33.44	33.64		40.427		
			74.94		4.882	15 346
10	89 53 48.43	48.58		45.309		
	January 12, 1872.—*Temperature*, 45°.0 F.					
1	89 48 44.63	44.63		25.270		
			76.06		4.988	15.249
2	50 0.68	0.69		30.258		
			76.62		5.015	15.278
3	51 17.16	17.31		35.273		
			80.02		5.194	15.406
4	52 37.13	37.53		40.467		
			73.11		4.780	15.294
5	53 50.29	50.44		45.247		
6	53 50.46	50.61		45.265		
			74.48		4.799	15.520
7	52 35.93	36.13		40.466		
			80.15		5.229	15.326
8	51 15.83	15.98		35.237		
			76.22		5.006	15.226
9	49 59.75	59.76		30.231		
			76.05		4.963	15.324
10	89 48 43.71	43.71		25.268		

In Table III, the column "*Observed Circle Reading*" contains the observed circle readings, corrected only for error of runs. As already stated, whenever the circle divisions did not fall within 15″ of the zeros of the micrometer microscopes, the divisions lying nearest on each side of these zeros were read. For example, in the first circle reading given above the division 89° 48′ fell on one side, and 89° 50′ on the other side, of the zero of the horizontal microscope of circle A. Therefore the micrometer microscopes of circle B were read twice; first, on the divisions corresponding to 89° 48′, and then on those corresponding to 89° 50′. These double readings served primarily for determining the error of runs, but they were also used for finding the errors of graduation. In the example just cited the mean of the four microscopes was, for the first reading, 11 revolutions, 0″.52, and for the second reading, 7 revolutions, 0″.40. The difference between these readings, 4 revolutions, 0″.12 = 4.0040 revolutions, is evidently the distance between the divisions in question. In the same manner every circle reading made upon two sets of divisions furnished one value of the interval between these divisions. The results are given in Table IV.

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TABLE IV.

89° 48′ to 89° 50′	89° 50′ to 89° 52′	89° 52′ to 89° 54′	89° 54′ to 89° 56′
r.	r.	r.	r.
4.0040	3.9840	3.9817	3.9910
3.9767	4.0013	3.9640	3.9760
3.9773	4.0010	3.9857	3.9850
3.9867	4.0040	3.9850	3.9933
3.9800	3.9690	4.0023	3.9853
3.9743	3.9783	3.9967	3.9850
4.0050	4.0000	3.9767	
3.9920	4.0010	3.9833	
4.0043	4.0193	3.9813	
3.9993	4.0067	3.9857	
		3.9967	
		3.9860	
		3.9933	
		3.9850	
3.9900	3.9965	3.9862	3.9853
"	"	"	"
120.02	120.21	119.90	119.87

At the foot of each column in Table IV is given the mean of the numbers contained in it. Adding these four means together, and dividing the sum by 480, (the number of seconds between 89° 48′ and 89° 56′), we obtain 0.033246 revolutions as the true value of 1″, upon the assumption that the divisions 89° 48′ and 89° 56′ are precisely 8′ apart. Dividing each mean by this quantity gives the numbers in the last line of Table IV, which are adopted as the true intervals between the divisions in question. The actual positions of these divisions are therefore

89° 48′ 0″.00
50′ 0″.02
52′ 0″.23
54′ 0″.13
56′ 0″.00

Reverting to Table III, and correcting the numbers in the column "*Observed Circle Reading*" for these errors of graduation, we get the numbers in the column "*Corrected Circle Reading.*" The differences between these latter numbers are the "*Intervals by Circle.*" The column "*Mean of Micrometer Readings*" contains the means of the readings made with the micrometer upon the horizontal wire of the collimator. The differences between these means are the "*Intervals by Micrometer.*" As the intervals by circle and the intervals by micrometer are both measures of the same space, dividing the former by the latter gives the values of one revolution of the screw; which values are contained in the column so headed.

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For convenience of reference an abstract of the results of the observations contained in Table III is given in Table V.

TABLE V.—*Values of One Revolution of the Zenith-Distance Micrometer-Screw of the Transit Circle, as found from Observations made on different parts of the Screw.*

Date.	$25\frac{1}{4}^r$ to $30\frac{1}{4}^r$	$30\frac{1}{4}^r$ to $35\frac{1}{4}^r$	$35\frac{1}{4}^r$ to $40\frac{1}{4}^r$	$40\frac{1}{4}^r$ to $45\frac{1}{4}^r$
1873.	"	"	"	"
January 6	15.218	15.314	15.326	15.315
8	15.238	15.350	15.444	15.292
10	15.180	15.349	15.368	15.232
11	15.324	15.326	15.329	15.463
12	15.286	15.352	15.366	15.407
Mean . .	15.249	15.338	15.367	15.342

The mean values contained in the last line of this table were accepted as final, and in order to deduce from them the value of each revolution of the screw they were plotted upon a piece of squared paper, and a smooth curve was passed through them; or rather, to speak more accurately, it was passed a very little above them, so as to make the mean values of the ordinates of the curve, taken between the limits $25\frac{1}{4}^r$ to $30\frac{1}{4}^r$, $30\frac{1}{4}^r$ to $35\frac{1}{4}^r$, &c., identical with the mean values of the table. The value of the screw at every revolution throughout the part used was then read from the curve, and these values have been employed in the reduction of all observations made during the year. They are given in the following table:

TABLE VI.—*Value of each Revolution of the Zenith-Distance Micrometer-Screw of the Transit Circle, as used during the Year* 1872.

NOTE.—If any revolution in this table is designated as n, then the number found opposite that revolution is the value of the screw from $n - \frac{1}{2}$ to $n + \frac{1}{2}$ revolutions.

Rev.	Value.	Rev.	Value.	Rev.	Value.
	"		"		"
25	15.193	32	15.333	39	15.368
26	15.217	33	15.346	40	15.363
27	15.239	34	15.355	41	15.357
28	15.261	35	15.362	42	15.349
29	15.282	36	15.367	43	15.339
30	15.301	37	15.369	44	15.327
31	15.318	38	15.369	45	15.314

It may be remarked that when the middle pair of micrometer wires occupies the center of the space between the fixed horizontal wires, the reading of the screw is 40 revolutions, and it increases as the wires move from the micrometer head.

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Right-Ascension Micrometer Screw.—The pitch of this screw is sensibly the same as that of the zenith-distance micrometer. Its value was determined by measuring with it the distance between the vertical wires B_1 and D_3, which was found to be 23.935 revolutions. Table II gives for the same space, 24.50 seconds of time. Hence

One revolution of the screw $= 1^s.024$

Inclination of Wires.—The zenith-distance micrometer is constructed with its movable wires as nearly as possible at right angles to the fixed vertical wires; and as the latter are set by adjustment truly vertical, the former are of course very nearly horizontal; but, owing to unavoidable imperfections of workmanship, they are seldom accurately so. This is of no consequence when the bisections of an object with the zenith-distance micrometer are made symmetrically with respect to wire IV; but if they are not so made, it affects the resulting zenith distance, and a correction must be applied for inclination of wires. It is computed by the formula

$$\text{Correction} = \pm \frac{Ri\,(r_{\text{i}} - r_{\text{vii}})}{I} = \pm 0.209\, i\,(r_{\text{i}} - r_{\text{vii}})$$

where the upper sign must be taken when the clamp is east, the lower when it is west. R is the value of one revolution of the micrometer screw; i the equatorial interval between the middle wire and the wire at which the correction is required; I, the equatorial interval between wires I and VII; and r_{i} and r_{vii}, the readings of the zenith-distance micrometer on a star at wires I and VII. The sign of i is + for wires I, II, III, and — for wires V, VI, VII.

Error of Collimation.—The collimation constant is determined, without reversing the instrument, by means of the collimators. The south one is designated "collimator A," and its field of view contains a single vertical wire, crossed at its middle point by a single horizontal wire. The north collimator is designated "collimator B," and its field of view is furnished with a pair of cross-wires, movable by means of a micrometer screw. Each of these wires makes an angle of 12° with the vertical, and, consequently, at their intersection they make an angle of 24° with each other.

After removing the covers of the opening through the central cube of the telescope, it is turned in zenith distance until, on looking into its eye-piece, its horizontal wire is seen to coincide with the image of the horizontal wire of collimator A. Then collimator A is moved in azimuth, by means of the screws which act against one of its Ys, until, on looking into its eye-piece, the image of the middle transit wire of the telescope is seen to be a little to one side of the vertical wire. Returning to the telescope, three measures of the small deviation of its middle transit wire from the image of the vertical wire of the collimator are made by means of the right-ascension micrometer. These measures are taken by first setting the micrometer wire so that the mean of it and the middle transit wire coincides with the image of the vertical wire of the collimator, and then moving the micrometer wire till it coincides with the middle transit wire. The required deviation is one-half the space passed over.

The telescope is next pointed toward the zenith, so as to make the two collimators visible from each other through its central cube, and the micrometer of collimator B is moved until the intersection of its cross-wires is exactly upon the image of the vertical

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wire of collimator A. The telescope is then pointed to collimator B, and four measures of the small deviation of its middle transit wire, from the image of the intersection of the cross-wires of the collimator, are made by means of the right-ascension micrometer as follows: The micrometer wire is placed so that the space between it and the middle transit wire is bisected by the image of the intersection of the cross-wires of the collimator, after which the micrometer is moved till its wire coincides with the middle transit wire. The required deviation is one-half the space passed over.

The telescope being once more pointed toward the zenith, the adjustment of collimator A is deranged, and it is adjusted afresh till its vertical wire is again exactly upon the image of the intersection of the cross-wires of collimator B. Then going to the telescope, another set of measures precisely similar to the first are made. The mean of the first and last set of measures is taken as the true distance of the middle transit wire from the image of the vertical wire of collimator A.

Let

c_τ = sum of the collimation constant and the constant of diurnal aberration at the temperature τ° Fahrenheit;

c_0 = sum of the same constants at the temperature 0° Fahrenheit;

M = distance, in micrometer revolutions, by which the image of the vertical wire of the south collimator is to the *east* of the middle transit wire;

M' = distance, in micrometer revolutions, by which the image of the intersection of the wires of the north collimator is to the *east* of the middle transit wire;

R' = value, in seconds of time, of one revolution of the micrometer screw = $1^s.024$;

φ = latitude of place of observation;

δi = reduction of position of middle transit wire to the mean of the set of nine wires = $+0^s.012$,

Then, if M and M' have been observed at the temperature τ, we have

$$c_\tau = \tfrac{1}{2}(M+M')R' - 0^s.021 \cos\varphi - \delta i = 0^s.512\,(M+M') - 0^s.028$$

In the instrument under consideration the collimation varies with the temperature, and from a discussion of many observations, taken at widely different temperatures, it has been found that

$$c_0 = c_\tau \mp 0^s.004\,\tau$$

where the upper sign is to be taken when the clamp is east, the lower when it is west.

The collimators are usually observed every Monday morning, and the value of c_0 is computed. For observations on other days the value of c_0 is interpolated, and from it, and the observed temperature at the time, the actual collimation constant is computed by means of the formula

$$c_\tau = c_0 \pm 0^s.004\,\tau$$

Of course, special care is taken not to make the observations for the determination of c_0 at times when the temperature of the air is changing rapidly.

Error of Level.—The level is of the hanging form. Its tube is three-quarters of an inch in diameter, ten inches long, and has a chamber at one end, so that the size of

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the bubble is adjustable. It seems to be most sensitive when its length is about one and one-quarter inches. The scale is numbered continuously from end to end, the numbers running from 0 to 90. The length of one division is 0.0895 of an inch, and its value $0^s.058$.

The level tube is closed by glass disks cemented into its ends; but after it had been in use about two years, the ether with which it is filled began to leak through the joints. To remedy this the tube was opened, re-filled, and the ends cemented in afresh. In less than a month it leaked worse than ever, and for a long period it gave much trouble, because we could find no cement that would keep it tight for more than a few weeks at a time. At last, however, we hit upon what we have since learned is the substance ordinarily employed for the purpose. This is common glue dissolved in hot water, as usual, and mixed with one-fifth or one-sixth of its volume of glycerine, the latter substance being added to prevent it from becoming brittle. Level tubes closed with this cement will remain tight for months, and when they do become leaky they are very easily repaired.

In making use of the level it is always reversed twice, thus giving two readings with it direct and two with it reversed.

Let

b = level constant;

W and E = readings of west and east ends of bubble with the level in its first position;

w and e = readings of west and east ends of bubble with the level reversed;

W' and E' = readings of the west and east ends of bubble when the level is returned to its first position;

w' and e' = readings of west and east ends of bubble when the level is reversed a second time.

Then we have

$$b = 0^s.00725\ [(W+E)+(W'+E')-(w+e)-(w'+e')]$$

When the $\left\{\begin{matrix}\text{west}\\ \text{east}\end{matrix}\right\}$ end of the bubble gives the greatest reading the sign of b is $\left\{\begin{matrix}+\\ -\end{matrix}\right.$

For reflection observations the sign of b is the opposite of that here given.

A careful investigation has proved that the pivots of the instrument are sensibly round, and equal in diameter.

Error of Azimuth.—The azimuth constant is determined from the observed time of transit of some one or more of the stars, Polaris, δ Ursæ Minoris, 51 Cephei, λ Ursæ Minoris, by means of the formula

$$a = \frac{\alpha - (T + \Delta T + bB + cC)}{A}$$

in which a, b, and c are the azimuth, level, and collimation constants; A, B, and C, the azimuth, level, and collimation factors; α, the adopted right ascension of the star; T, its time of transit as observed by the face of the clock; and ΔT, a closely approximate value of the clock correction at the time T.

When double transits of any of the stars named above are obtained by one observer, during a single observing-day, the azimuth is generally made to depend upon them

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alone. If no double transits are available, the adopted azimuth is the mean of the results given by the single transits of so many of the stars in question as may have been observed.

It occasionally happens that a number of observations are got, but, owing to the interference of clouds, no azimuth stars are obtained. In such cases each known star observed is made to furnish an equation of condition, involving as unknown quantities the clock correction and the azimuth constant, and from all the equations thus formed these quantities are determined by the method of least squares.

Zenith-Point Correction.—This constant is determined by observations of the nadir point, made over a trough of mercury, with a Bohnenberger collimating eye-piece, in the following manner:

1. The telescope is pointed vertically downward over a trough of mercury, and then it is clamped, and set by the tangent screw, so that the circle reading is as nearly as possible 179° 56′.

2. Circle B is read by means of its four micrometer microscopes.

3. Two readings of the telescope zenith-distance micrometer are taken by placing its close pair of declination wires so that they are separated from their images by a space equal to the distance between the two wires, the wires and their images exhibiting four parallel lines with three equal spaces between them, and the micrometer reading of the wires being less than that of their images.

4. Four readings of the micrometer are taken precisely as described in paragraph 3, except that the places of the wires and their images are interchanged, the reading of the wires being now greater than that of their images.

5. Two more readings of the micrometer are taken exactly as described in paragraph 3.

6. Circle B is again read.

If we imagine a mean wire bisecting the space between the close pair of declination wires, it is evident that the mean of the eight micrometer readings, made as described in paragraphs 3, 4, and 5, will be identical with the reading which would have been obtained by causing this imaginary mean wire to cover its own image. The two circle readings serve as a check on each other, and prevent the possibility of any undetected shift of the telescope while the zenith-distance micrometer readings are in progress.

The observations are reduced by means of the formula.

$$\text{Zenith Point Correction} = + \left\{ \begin{array}{l} 180^\circ + \text{Division Correction for Circle B} \\ \quad + \text{Correction for Flexure of Circle B} \\ \quad + \text{Correction for Flexure of Telescope} \\ \quad - \text{Constant added to Reduction to Meridian.} \end{array} \right\}$$

$$- \left\{ \begin{array}{l} 179^\circ\ 56' \pm 10 \text{ Revolutions of Micrometer Microscopes} \\ \quad \mp \text{Observed Reading of Micrometer Microscopes} \\ \quad + \text{Micrometer Equivalent corresponding to (Observed Reading of Zenith-Distance Micrometer} + 0^r.250). \end{array} \right\}$$

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The values of the division and flexure corrections are found by means of the formulæ given for reflection observations in Tables XII, XIII, XIV, and XVIII. The constant added to the reduction to the meridian is + 1″.80. In the terms relating to the micrometer microscopes the upper signs are to be taken when the clamp is east and the lower when it is west.

The value of the first term in the expression for the zenith-point correction is a constant, and may be computed for the year 1872 thus: During that year the position of the instrument was clamp west; circle B was used, and when the telescope pointed to the zenith, the horizontal microscope of that circle read 0°.0, which is the value of R_0. The distance of the nadir point from the reflected pole is 51°.1, which is the value of Δ. With these data, Table XIII gives 0° as the argument with which to enter Table XII in order to obtain the division-correction, and the division-correction itself is thus found to be — 0″.30. With the same data Table XIV gives the correction for circle flexure, —1″.20 sin 134°.3 = — 0″.86; and Table XVIII gives the correction for flexure of telescope + 1″.10 sin 15°.3 = + 0″.29. Collecting our results, we have

	180°	0′	0″.00
Correction for Errors of Division, . . .		—	0″.30
Correction for Flexure of Circle, . . .		—	0″.86
Correction for Flexure of Telescope, . .		+	0″.29
Constant added to Reduction to Meridian,		—	1″.80
Sum, - - - - - - - - - -	179°	59′	57″.33

which is the value of the first term of the zenith-point correction. The second term is simply the concluded circle-reading when the clamp is east, or the concluded circle-reading plus a constant when the clamp is west; the correction + 0ʳ.250 to the observed reading of the zenith-distance micrometer being due to the fact that the head of that micrometer has four indexes, and the one used in the nadir observation reads one-quarter of a revolution less than that employed when celestial objects are observed.

The observations of nadir point made during the year, together with the resulting zenith-point corrections, may be found in Table E at the end of this introduction. The first column gives the mean day and tenth of a day, and the second column gives the nearest sidereal hour; thus defining the time of observation within thirty minutes. The third column contains the observer's initial. The fourth, fifth, sixth, and seventh columns contain the readings of the micrometer microscopes when the telescope was pointed to the nadir; the divisions of circle B, upon which the readings were actually made, being as follows:

Microscope V, - - - - - - - - -	135°	0′
Microscope VI, - - - - - - - - -	225°	0′
Microscope VII, - - - - - - - - -	315°	0′
Microscope VIII, - - - - - - - - -	45°	0′

As already explained, the degrees and minutes of the circle-reading are referred to the horizontal microscope of circle A, which reads 179° 56′ when the telescope

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points to the nadir. The whole revolutions of microscope V are not usually recorded, because the circle is habitually so set as to make them as nearly as possible 10. If they differ more than about 10″ from that quantity they are carefully noted.

The eighth column contains the readings of the telescope zenith-distance micrometer for coincidence of each wire of its close pair with the image of the adjoining wire; or, in other words, for coincidence of the imaginary mean wire with its image. Each of the numbers here recorded is the mean of eight readings taken in the manner described above. The ninth column gives the concluded circle readings for the nadir point. The tenth column contains the resulting zenith-point corrections, which should have been obtained by subtracting the concluded circle readings from the constant 179° 59′ 57″.33. By mistake, the constant actually employed was 179° 59′ 57″.04. Therefore, all the zenith-point corrections are too small by 0″.29, and the polar distances obtained from direct observations are too small, and those obtained from reflection observations are too great, by the same quantity. This error has been allowed for in computing the final systematic corrections to the observed north polar distances.

EXPLANATION OF THE PRINTED OBSERVATIONS WITH THE TRANSIT CIRCLE.

These observations are contained on pages 1 to 160, and, in printing them, the rule has been adopted to give everything exactly as recorded by the observer, without alteration in any case whatever, and without addition, except in very rare cases, which are noted at the foot of the page. When a record seems erroneous, the error is pointed out by a foot-note if necessary. Where there is no reasonable doubt of the nature of an error, a corresponding correction is introduced at such stage of the reductions as is most convenient, but it has not been found practicable to adhere to any invariable rule respecting the point of introduction of such corrections.

Beginning with the left-hand pages, on which are printed the observations of right ascension,

The column "*Date*" contains the astronomical date, which is always about twelve hours behind the civil date. The day is supposed to commence with the transit of the sun.

The column "*Number*" contains the number for convenience of reference.

The column "*Object*" contains the name of the object. In the case of the sun, moon, and planets the part observed is always specified; I and II indicating respectively the preceding and following limbs; N. and S. the north and south limbs; N. C. and S. C. the north and south cusps; and C. the center. The latter is observed only when a planet is so small and round that the edges of its disk cannot be bisected with accuracy. When but one component of a double star is observed, it is always the brighter of the two unless otherwise stated.

The column "*Observer*" contains the initial of the observer, as follows:

Ha.—Professor William Harkness.
H.—Professor A. Hall.
E.—Professor J. R. Eastman.
F.—Assistant Observer Edgar Frisby.
S.—Assistant Observer Ormond Stone.

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The nine columns under the head "*Seconds of Transit over Wires*" contain the seconds and tenths of the observed time of transit over each wire. Objects observed over the standard set of nine wires, viz, set B, C_2 to C_4, and set D, are recorded in the columns I to IX; those observed only over set C are recorded in the columns III to VII; those observed only over sets B and D, in the columns I to III and VII to IX; those observed only over sets B and C, in the columns I to VIII; and those observed only over sets C and D, in the columns II to IX. In the case of irregular observations, the wires can generally be identified by means of the intervals between the times of transit. Transits below the pole are recorded in an order the reverse of that actually observed, so that each wire occupies the same column it would have done if the transit had been above the pole.

The column "*Mean Wire*" contains the time of transit over an imaginary wire whose position is the mean of the standard set of nine wires. When an object has been observed over all the wires of the standard set, their mean is, of course, its time of transit over the imaginary wire. For objects not so observed the method of reduction is as follows:

Let

T_0 = time of transit of object over imaginary mean wire;
T = observed time of transit of object over any wire;
i = equatorial interval between that wire and the imaginary mean wire;
δ = geocentric declination of object;
$\Delta\alpha$ = number of seconds of time which the sun, or a planet, changes its right ascension while passing over the space between two terrestrial meridians separated from each other by one hour of longitude, or, in other words, its change of right ascension in one hour of longitude;
$D\alpha$ = number of minutes by which the moon increases her mean time of meridian passage in one hour of terrestrial longitude;
ζ = geocentric zenith distance of object;
ζ' = apparent zenith distance of object.

Then, for a star

$$T_0 = T + i \sec \delta$$

or, if i is large and the star very near the pole,

$$T_0 = T + i \sec \delta \times k$$

$$k = \frac{I \sin 15''}{\sin I}$$

$$\sin I = \sin i \sec \delta$$

The values of $\log k$ are as follows:

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TABLE VII.—*Values of Log k.*

I.	Log (i sec δ).	Log k.	*I.*	Log (i sec δ).	Log k.
m.			*m.*		
1	1.778	0.00000	16	2.982	0.00035
2	2.079	0.00001	17	3.008	0.00040
3	2.255	0.00001	18	3.033	0.00045
4	2.380	0.00002	19	3.056	0.00050
5	2.477	0.00003	20	3.079	0.00055
6	2.556	0.00005	21	3.100	0.00061
7	2.623	0.00007	22	3.120	0.00067
8	2.681	0.00009	23	3.139	0.00073
9	2.732	0.00011	24	3.158	0.00080
10	2.778	0.00014	25	3.175	0.00086
11	2.819	0.00017	26	3.192	0.00093
12	2.857	0.00020	27	3.209	0.00101
13	2.892	0.00023	28	3.224	0.00108
14	2.924	0.00027	29	3.239	0.00116
15	2.954	0.00031	30	3.254	0.00124

For the sun, or a planet,

$$T_0 = T + i \sec \delta \times E$$

$$\log E = 0.00012\ \Delta\alpha$$

For the sun it is always sufficiently accurate to take $\log E = 0.0012$.

For the moon the following formula, founded on that of Sir G. B. Airy, is employed:

$$T_0 = T + i \sec \delta \times F \times G$$

$$F = \frac{1.00274\ (60 + D\alpha)}{60}$$

$$G = \frac{\sin \varsigma}{\sin \varsigma'} = 1 - \rho \sin \pi \cos (\varphi' - \delta)$$

in which φ' is the geocentric latitude of the transit circle $= 38^\circ\ 42'\ 24''.3$; ρ its geocentric distance, $\log \rho = 9.9994302$; π, the moon's equatorial horizontal parallax; and 1.00274, the factor for converting mean into sidereal time. To facilitate the application of this formula the following tables have been computed:

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TABLE VIII.—*Logarithms of the Factor F for reducing Imperfect Transits of the Moon.*

[ARGUMENT.—Change of Moon's mean time of transit in one hour of terrestrial longitude.]

Da	Log *G.*	*Da*	Log *G.*	*Da*	Log *G.*	*Da*	Log *G.*
m.		m.		m.		m.	
1.60	0.01262	1.90	0.01473	2.20	0.01683	2.50	0.01891
1.62	.01276	1.92	.01487	2.22	.01697	2.52	.01905
1.64	.01290	1.94	.01501	2.24	.01711	2.54	.01919
1.66	.01305	1.96	.01515	2.26	.01725	2.56	.01933
1.68	.01319	1.98	.01529	2.28	.01738	2.58	.01947
1.70	0.01333	2.00	0.01543	2.30	0.01752	2.60	0.01961
1.72	.01347	2.02	.01557	2.32	.01766	2.62	.01975
1.74	.01361	2.04	.01571	2.34	.01780	2.64	.01989
1.76	.01375	2.06	.01585	2.36	.01794	2.66	.02002
1.78	.01389	2.08	.01599	2.38	.01806	2.68	.02016
1.80	0.01403	2.10	0.01613	2.40	0.01822	2.70	0.02030
1.82	.01417	2.12	.01627	2.42	.01836	2.72	.02044
1.84	.01431	2.14	.01641	2.44	.01850	2.74	.02058
1.86	.01445	2.16	.01655	2.46	.01863	2.76	.02072
1.88	.01459	2.18	.01669	2.48	.01877	2.78	.02086

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TABLE IX.—*Logarithms of the Factor G for reducing Imperfect Transits of the Moon.*

Moon's Geocentric N. P. D.	Moon's Equatorial Horizontal Parallax.									Moon's Geocentric Declination.
	54′	55′	56′	57′	58′	59′	60′	61′	62′	
°										°
62	9.99325	9.99313	9.99301	9.99288	9.99275	9.99262	9.99249	9.99236	9.99224	+ 28
63	.99327	.99316	.99304	.99290	.99278	.99265	.99252	.99239	.99227	27
64	.99330	.99318	.99306	.99293	.99280	.99267	.99255	.99242	.99230	26
65	.99333	.99321	.99309	.99296	.99283	.99271	.99258	.99245	.99233	25
66	9.99336	9.99323	9.99311	9.99299	9.99286	9.99274	9.99261	9.99249	9.99237	+ 24
67	.99340	.99327	.99315	.99303	.99290	.99278	.99265	.99253	.99241	23
68	.99343	.99331	.99318	.99306	.99294	.99282	.99269	.99257	.99245	22
69	.99347	.99335	.99322	.99310	.99298	.99286	.99273	.99262	.99249	21
70	.99351	.99339	.99326	.99314	.99302	.99290	.99278	.99266	.99254	20
71	9.99355	9.99343	9.99330	9.99318	9.99306	9.99295	9.99282	9.99271	9.99258	+ 19
72	.99359	.99347	.99335	.99323	.99311	.99299	.99287	.99275	.99263	18
73	.99364	.99352	.99339	.99328	.99316	.99304	.99292	.99280	.99269	17
74	.99368	.99356	.99344	.99332	.99321	.99309	.99297	.99284	.99274	16
75	.99373	.99361	.99349	.99338	.99326	.99315	.99302	.99290	.99279	15
76	9.99378	9.99366	9.99355	9.99343	9.99332	9.99320	9.99308	9.99296	9.99285	+ 14
77	.99383	.99372	.99360	.99349	.99338	.99327	.99314	.99302	.99291	13
78	.99389	.99378	.99366	.99355	.99344	.99333	.99321	.99309	.99298	12
79	.99395	.99384	.99372	.99361	.99350	.99339	.99327	.99315	.99304	11
80	.99401	.99390	.99378	.99367	.99356	.99345	.99333	.99322	.99311	10
81	9.99407	9.99396	9.99384	9.99373	9.99362	9.99351	9.99340	9.99329	9.99318	+ 9
82	.99413	.99402	.99391	.99380	.99369	.99358	.99347	.99336	.99325	8
83	.99419	.99408	.99397	.99386	.99376	.99365	.99354	.99343	.99332	7
84	.99425	.99414	.99404	.99393	.99383	.99372	.99361	.99350	.99339	6
85	.99431	.99421	.99411	.99400	.99390	.99379	.99368	.99358	.99347	5
86	9.99438	9.99428	9.99418	9.99407	9.99397	9.99387	9.99376	9.99365	9.99355	+ 4
87	.99445	.99435	.99425	.99414	.99405	.99394	.99384	.99373	.99363	3
88	.99453	.99443	.99433	.99422	.99412	.99402	.99392	.99381	.99371	2
89	.99460	.99450	.99440	.99430	.99420	.99410	.99400	.99389	.99380	+ 1
90	.99468	.99458	.99448	.99438	.99428	.99418	.99408	.99398	.99388	0
91	9.99475	9.99466	9.99456	9.99446	9.99436	9.99426	9.99417	9.99407	9.99397	− 1
92	.99483	.99474	.99464	.99454	.99445	.99435	.99425	.99416	.99406	2
93	.99491	.99482	.99472	.99462	.99454	.99444	.99434	.99425	.99415	3
94	.99499	.99490	.99480	.99471	.99462	.99453	.99443	.99434	.99425	4
95	.99507	.99499	.99489	.99480	.99471	.99462	.99453	.99444	.99434	5
96	9.99516	9.99507	9.99498	9.99489	9.99480	9.99471	9.99462	9.99453	9.99444	− 6
97	.99525	.99516	.99507	.99498	.99490	.99481	.99472	.99463	.99454	7
98	.99534	.99525	.99517	.99508	.99500	.99491	.99482	.99473	.99464	8
99	.99542	.99534	.99526	.99517	.99510	.99501	.99492	.99484	.99474	9
100	.99552	.99544	.99536	.99527	.99519	.99511	.99502	.99494	.99485	10
101	9.99561	9.99553	9.99545	9.99537	9.99529	9.99521	9.99513	9.99505	9.99496	− 11
102	.99571	.99563	.99555	.99547	.99539	.99531	.99523	.99515	.99506	12
103	.99580	.99573	.99565	.99557	.99550	.99542	.99534	.99526	.99518	13
104	.99590	.99583	.99575	.99568	.99560	.99552	.99544	.99537	.99529	14
105	.99600	.99593	.99585	.99578	.99570	.99563	.99555	.99548	.99540	15
106	9.99610	9.99603	9.99596	9.99589	9.99581	9.99574	9.99566	9.99559	9.99552	− 16
107	.99620	.99613	.99606	.99600	.99592	.99585	.99577	.99571	.99563	17
108	.99630	.99624	.99617	.99610	.99603	.99596	.99589	.99582	.99575	18
109	.99640	.99635	.99627	.99621	.99614	.99608	.99600	.99594	.99587	19
110	.99651	.99645	.99638	.99632	.99625	.99619	.99612	.99606	.99599	20
111	9.99661	9.99656	9.99648	9.99642	9.99636	9.99630	9.99624	9.99618	9.99611	− 21
112	.99672	.99666	.99659	.99653	.99647	.99641	.99635	.99629	.99623	22
113	.99682	.99677	.99670	.99664	.99658	.99652	.99647	.99641	.99635	23
114	.99693	.99687	.99681	.99676	.99670	.99664	.99659	.99653	.99647	24
115	.99703	.99698	.99692	.99687	.99682	.99676	.99671	.99665	.99660	25
116	9.99714	9.99709	9.99704	9.99699	9.99694	9.99689	9.99683	9.99678	9.99672	− 26
117	.99725	.99720	.99715	.99710	.99706	.99701	.99695	.99690	.99685	27
118	.99736	.99731	.99727	.99722	.99718	.99713	.99708	.99703	.99698	− 28

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Each wire over which an object has been observed thus furnishes one value of its time of transit over the imaginary wire, and the mean of all the values so found is the quantity entered in the column "*Mean Wire.*"

The column "*Inst.,*" under the general head "*Corrections,*" contains the sum of the instrumental corrections; or, in other words, the quantity

$$Aa + Bb + Cc$$

in which a, b, and c are the constants, and A, B, and C the factors, for azimuth, level, and collimation. The methods of finding a, b, and c have been already given. For reflection observations the sign of b is the reverse of that which it is for direct ones. The formulæ for computing A, B, and C are

$$A = \sin(\varphi - \delta) \sec \delta = \sin \varphi - \cos \varphi \tan \delta$$
$$B = \cos(\varphi - \delta) \sec \delta = \cos \varphi + \sin \varphi \tan \delta$$
$$C = \sec \delta$$

in which φ is the latitude of the place of observation, and δ the declination of the object observed. For a culmination below the pole, $180° - \delta$ must be substituted instead of δ. The following rules are sometimes convenient for determining the signs of these quantities:

A is positive, except for stars between the zenith and the pole.

B and C are positive, except for stars below the pole.

Table X gives, both for direct and reflection observations, the values of the factors A, B, C, for each degree of north polar distance, to the arguments north polar distance and zenith distance south. The tables actually employed in making the reductions are much more extensive, giving the values of the quantities Aa, Bb, Cc, for each degree of zenith distance, and for each $0^s.01$ of the constants a, b, c, from $0^s.00$ to $0^s.50$. They form Appendix I to this volume.

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TABLE X.—*Values of the Factors A, B, C, for reducing Observations of Right Ascension.*

Zenith Distance South.	Zenith Distance South.	*A*	*B*	*C*	North Polar Distance.	North Polar Distance.
°	°				°	°
275	265	+ 1.786	− 0.156	− 1.793	326.1	316.1
276	264	.830	.193	.841	327.1	315.1
277	263	.878	.231	.892	328.1	314.1
278	262	.927	.271	1.947	329.1	313.1
279	261	1.981	.314	2.006	330.1	312.1
280	260	+ 2.036	− 0.359	− 2.069	331.1	311.1
281	259	.097	.406	.137	332.1	310.1
282	258	.160	.460	.210	333.1	309.1
283	257	.230	.515	.289	334.1	308.1
284	256	.301	.574	.375	335.1	307.1
285	255	+ 2.382	− 0.639	− 2.468	336.1	306.1
286	254	.469	.708	.570	337.1	305.1
287	253	.564	.784	.681	338.1	304.1
288	252	.666	.866	.803	339.1	303.1
289	251	.777	0.953	2.938	340.1	302.1
290	250	+ 2.901	− 1.056	− 3.087	341.1	301.1
291	249	3.037	.167	.254	342.1	300.1
292	248	.189	.289	.441	343.1	299.1
293	247	.360	.427	.652	344.1	298.1
294	246	.553	.583	3.891	345.1	297.1
295	245	+ 3.774	− 1.761	− 4.164	346.1	296.1
296	244	4.026	1.965	.481	347.1	295.1
297	243	.322	2.204	4.852	348.1	294.1
298	242	4.670	.486	5.291	349.1	293.1
299	241	5.088	2.822	5.820	350.1	292.1
300	240	+ 5.599	− 3.235	− 6.468	351.1	291.1
301	239	6.239	3.751	7.281	352.1	290.1
302	238	7.062	4.416	8.331	353.1	289.1
303	237	8.163	5.305	9.738	354.1	288.1
304	236	9.717	6.555	11.721	355.1	287.1
305	235	+ 12.062	− 8.446	− 14.725	356.1	286.1
306	234	16.023	11.641	19.806	357.1	285.1
307	233	24.162	18.207	30.255	358.1	284.1
308	232	+ 50.497	− 39.453	− 64.090	359.1	283.1
309	231	−420.509	+340.522	+541.094	0.1	282.1
310	230	− 39.693	+ 33.306	51.826	1.1	281.1
311	229	20.539	17.854	27.186	2.1	280.1
312	228	13.716	12.350	18.455	3.1	279.1
313	227	10.215	9.525	13.957	4.1	278.1
314	226	8.085	7.806	11.236	5.1	277.1
315	225	− 6.648	+ 6.648	+ 9.401	6.1	276.1
316	224	5.613	5.816	8.083	7.1	275.1
317	223	4.834	5.187	7.092	8.1	274.1
318	222	4.226	4.696	6.319	9.1	273.1
319	221	3.737	4.301	5.699	10.1	272.1

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TABLE X.—*Values of the Factors A, B, C, &c.*—Continued.

Zenith Distance South.	Zenith Distance South.	*A*	*B*	*C*	North Polar Distance.	North Polar Distance.
°	°				°	°
320	220	− 3.335	+ 3.978	+ 5.191	11.1	271.1
321	219	2.999	.706	4.768	12.1	270.1
322	218	.713	.475	.410	13.1	269.1
323	217	.468	.277	4.103	14.1	268.1
324	216	.255	3.105	3.837	15.1	267.1
325	215	− 2.066	+ 2.953	+ 3.605	16.1	266.1
326	214	1.900	.819	.400	17.1	265.1
327	213	.753	.700	.218	18.1	264.1
328	212	.619	.591	3.055	19.1	263.1
329	211	.498	.494	2.909	20.1	262.1
330	210	− 1.388	+ 2.405	+ 2.777	21.1	261.1
331	209	.288	.324	.657	22.1	260.1
332	208	.196	.249	.548	23.1	259.1
333	207	.111	.181	.448	24.1	258.1
334	206	1.033	.118	.357	25.1	257.1
335	205	− 0.960	+ 2.060	+ 2.273	26.1	256.1
336	204	.892	2.005	.195	27.1	255.1
337	203	.830	1.954	.123	28.1	254.1
338	202	.770	.907	2.056	29.1	253.1
339	201	.714	.861	1.994	30.1	252.1
340	200	− 0.662	+ 1.819	+ 1.936	31.1	251.1
341	199	.612	.779	.882	32.1	250.1
342	198	.565	.741	.831	33.1	249.1
343	197	.521	.706	.784	34.1	248.1
344	196	.479	.672	.739	35.1	247.1
345	195	− 0.439	+ 1.639	+ 1.697	36.1	246.1
346	194	.400	.608	.658	37.1	245.1
347	193	.364	.579	.621	38.1	244.1
348	192	.329	.550	.586	39.1	243.1
349	191	.295	.524	.552	40.1	242.1
350	190	− 0.264	+ 1.498	+ 1.521	41.1	241.1
351	189	.233	.473	.492	42.1	240.1
352	188	.204	.449	.464	43.1	239.1
353	187	.175	.426	.437	44.1	238.1
354	186	.147	.403	.412	45.1	237.1
355	185	− 0.120	+ 1.382	+ 1.388	46.1	236.1
356	184	.095	.361	.365	47.1	235.1
357	183	.070	.341	.344	48.1	234.1
358	182	.046	.322	.323	49.1	233.1
359	181	− 0.023	.303	.304	50.1	232.1
0	180	0.000	+ 1.285	+ 1.285	51.1	231.1
1	179	+ 0.022	.267	.267	52.1	230.1
2	178	.044	.250	.250	53.1	229.1
3	177	.065	.233	.234	54.1	228.1
4	176	.085	.216	.219	55.1	227.1

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TABLE X.—*Values of the Factors A, B, C, &c.*—Continued.

Zenith Distance South.	Zenith Distance South.	*A*	*B*	*C*	North Polar Distance.	North Polar Distance.
°	°				°	°
5	175	+ 0.105	+ 1.200	+ 1.205	56.1	226.1
6	174	.125	.184	.191	57.1	225.1
7	173	.144	.169	.178	58.1	224.1
8	172	.163	.154	.165	59.1	223.1
9	171	.181	.139	.154	60.1	222.1
10	170	+ 0.199	+ 1.125	+ 1.142	61.1	221.1
11	169	.216	.110	.132	62.1	220.1
12	168	.234	.096	.121	63.1	219.1
13	167	.251	.083	.112	64.1	218.1
14	166	.267	.069	.102	65.1	217.1
15	165	+ 0.283	+ 1.056	+ 1.094	66.1	216.1
16	164	.300	.043	.086	67.1	215.1
17	163	.315	.030	.078	68.1	214.1
18	162	.331	.018	.070	69.1	213.1
19	161	.346	.005	.064	70.1	212.1
20	160	+ 0.362	+ 0.993	+ 1.057	71.1	211.1
21	159	.377	.981	.051	72.1	210.1
22	158	.392	.969	.045	73.1	209.1
23	157	.406	.957	.040	74.1	208.1
24	156	.421	.945	.035	75.1	207.1
25	155	+ 0.436	+ 0.933	+ 1.030	76.1	206.1
26	154	.450	.922	.026	77.1	205.1
27	153	.464	.910	.022	78.1	204.1
28	152	.479	.899	.018	79.1	203.1
29	151	.493	.887	.015	80.1	202.1
30	150	+ 0.507	+ 0.876	+ 1.012	81.1	201.1
31	149	.520	.865	.010	82.1	200.1
32	148	.534	.854	.007	83.1	199.1
33	147	.548	.843	.005	84.1	198.1
34	146	.561	.832	.004	85.1	197.1
35	145	+ 0.575	+ 0.821	+ 1.002	86.1	196.1
36	144	.588	.810	.001	87.1	195.1
37	143	.602	.799	.001	88.1	194.1
38	142	.616	.788	.000	89.1	193.1
39	141	.630	.777	.000	90.1	192.1
40	140	+ 0.643	+ 0.766	+ 1.000	91.1	191.1
41	139	.657	.755	.001	92.1	190.1
42	138	.670	.744	.002	93.1	189.1
43	137	.684	.733	.003	94.1	188.1
44	136	.697	.722	.004	95.1	187.1
45	135	+ 0.711	+ 0.711	+ 1.006	96.1	186.1
46	134	.724	.700	.008	97.1	185.1
47	133	.738	.689	.010	98.1	184.1
48	132	.752	.678	.013	99.1	183.1
49	131	.766	.666	.016	100.1	182.1

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TABLE X.—*Values of the Factors A, B, C, &c.*—Continued.

Zenith Distance South.	Zenith Distance South.	*A*	*B*	*C*	North Polar Distance.	North Polar Distance.
°	°				°	°
50	130	+ 0.780	+ 0.655	+ 1.019	101.1	181.1
51	129	.794	.644	.023	102.1	180.1
52	128	.809	.632	.027	103.1	179.1
53	127	.823	.620	.031	104.1	178.1
54	126	.838	.608	.036	105.1	177.1
55	125	+ 0.853	+ 0.597	+ 1.041	106.1	176.1
56	124	.868	.585	.046	107.1	175.1
57	123	.882	.573	.052	108.1	174.1
58	122	.897	.561	.058	109.1	173.1
59	121	.913	.548	.065	110.1	172.1
60	120	+ 0.928	+ 0.536	+ 1.072	111.1	171.1
61	119	.944	.523	.079	112.1	170.1
62	118	.959	.510	.087	113.1	169.1
63	117	.976	.497	.095	114.1	168.1
64	116	.992	.484	.104	115.1	167.1
65	115	+ 1.009	+ 0.470	+ 1.114	116.1	166.1
66	114	.026	.456	.123	117.1	165.1
67	113	.043	.443	.134	118.1	164.1
68	112	.060	.429	.144	119.1	163.1
69	111	.079	.414	.156	120.1	162.1
70	110	+ 1.097	+ 0.399	+ 1.168	121.1	161.1
71	109	.115	.384	.180	122.1	160.1
72	108	.135	.369	.194	123.1	159.1
73	107	.155	.353	.208	124.1	158.1
74	106	.175	.337	.222	125.1	157.1
75	105	+ 1.195	+ 0.320	+ 1.238	126.1	156.1
76	104	.216	.303	.254	127.1	155.1
77	103	.238	.286	.271	128.1	154.1
78	102	.260	.267	.289	129.1	153.1
79	101	.283	.249	.307	130.1	152.1
80	100	+ 1.306	+ 0.230	+ 1.327	131.1	151.1
81	99	.331	.210	.348	132.1	150.1
82	98	.356	.190	.370	133.1	149.1
83	97	.382	.169	.392	134.1	148.1
84	96	.408	.148	.417	135.1	147.1
85	95	1.436	0.126	1.442	136.1	146.1

Table B, at the end of this introduction, contains the adopted values of the instrumental constants for all occasions on which observations were made. The first and second columns give the mean date to the nearest tenth of a day. When the tenth is 0, it is to be understood that the day begins with the observer's tour of duty, generally about three hours earlier than the commencement of the astronomical day. The constants for the nth date at 21^h mean time are therefore placed opposite the $(n+1)$th date. The column "τ" gives, in Fahrenheit degrees, the approximate mean temperature of the instrument during the time the observations were in progress.

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It is employed for computing the collimation from the absolute determinations contained in Table A. The columns *c*, *b*, and *a* contain, respectively, the adopted values of the collimation, level, and azimuth constants.

The column "*Clock Appar'nt,*" under the general head "*Corrections,*" contains the apparent clock corrections given by direct observations of stars of the American Ephemeris situated within 40° of the equator. The adopted apparent right ascensions of these stars are obtained by applying the corrections given in Table C to the apparent right ascensions given in the American Ephemeris. From the adopted right ascensions thus found, the sums of the numbers in the columns "*Mean Wire*" and "*Inst.*" are subtracted, and the results are the apparent clock corrections. Reflection observations are not used for finding clock corrections.

On pages 41–43 of Appendix III to the Washington Observations for 1867, Professor Newcomb has given a catalogue of "Mean positions for 1870.0 of Stars of the American Ephemeris, deduced from Observations with the Transit Instrument and the Transit Circle during the years 1862–'67." This has been adopted as the fundamental catalogue, except that its right ascensions have been diminished by $0^s.03$ in order to free them from a somewhat doubtful correction to the position of the equinox. The numbers given in Table C are, therefore, the corrections necessary to reduce the right ascensions of the American Ephemeris to those of the fundamental catalogue, after the latter have been diminished by $0^s.03$.

The column "*Clock Adopted,*" under the general head "*Corrections,*" contains the adopted clock correction for each star, computed from the data given in Table D.

Table D is constructed upon the assumption that for each observing-day the mean of all the apparent clock corrections obtained by a single person corresponds to the mean of the times at which they were observed. Accordingly, for each observing-day during which observations were actually made, the column "*Mean Day and Sidereal Hour*" contains the mean date, together with the sidereal hour and tenth of an hour corresponding to the mean of the right ascensions of all the clock-stars which were observed; while the corresponding means of the apparent clock corrections given by the same stars are contained in the column "*Clock Correction from Mean of Observations.*" The initials of the person who made the observations are contained in the column "*Observer.*" When clock corrections are determined by two or more persons during a single observing-day, the results are given separately for each person.

Occasionally two or more of the observers are directed to determine independent values of the clock correction for a given instant, and from a comparison of the results their personal equations are deduced. The best mode of getting the simultaneous clock corrections is for the observers to note the transits of alternate time-stars, one of them taking the first star, the other the next, and so on till each has observed six stars, which may generally be accomplished in less than two hours. The probable errors of the resulting clock corrections will be about $0^s.01$. Sometimes it is more convenient for one of the observers to get all his stars first, and for the other to get his subsequently; but in such cases, to avoid too great dependence upon the clock-rate, the interval between the mean of the right ascensions of the stars taken by the first observer and the mean of the right ascensions of the stars taken by the second observer should not exceed six hours. If the first method is employed, the clock correc-

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tions found by the two observers will belong to instants so nearly identical that the clock-rate may be neglected unless it is very large, and the difference between the two corrections will be the difference of personal equation. If the second method is used, the two corrections may belong to widely different instants, and must be reduced to a common epoch, by means of the clock-rate, before the personal equation can be inferred.

During the year 1872 each observer observed with every other observer for the purpose of determining his relative personal equation. The results, together with the dates when they were obtained, are as follows:

May	4	$0 = -0^{s}.13 + \text{Ha.} - \text{F.}$	
	13	$0 = +0.03 + \text{E.} - \text{F.}$	
	14	$0 = +0.01 + \text{F.} - \text{S.}$	
	30	$0 = -0.14 + \text{Ha.} - \text{S.}$	
June	4	$0 = +0.21 + \text{E.} - \text{S.}$	
	6	$0 = -0.30 + \text{Ha.} - \text{E.}$	

As the personal equation of one of the observers must necessarily remain indeterminate, we place that of Ha. equal to zero, and refer the others to it as a standard. Then treating our equations of condition by the method of least squares, we obtain the following normal equations:

$$0 = +0^{s}.54 + 3\text{E.} - 1\text{F.} - 1\text{S.}$$
$$0 = +0.11 - 1 + 3 - 1$$
$$0 = -0.08 - 1 - 1 + 3$$

Solving, we find

E.	$= -0^{s}.275$
F.	$= -0.168$
S.	$= -0.121$

Restoring Ha., these expressions become

$$\text{E.} = \text{Ha.} - 0^{s}.275$$
$$\text{F.} = \text{Ha.} - 0.168$$
$$\text{S.} = \text{Ha.} - 0.121$$

from which it has been inferred that the corrections which must be applied to the clock corrections obtained by different observers, in order to reduce them to the adopted uniform standard, are

Ha.	$= -0^{s}.14$
E.	$= +0.13$
F.	$= +0.03$
S.	$= -0.02$

Accordingly, applying these quantities to the numbers contained in the column of Table D headed "*Clock Correction from Mean of Observations*," there results the numbers contained in the column "*Clock Correction Corrected for Personal Equation.*" Dividing the differences between the latter quantities by the intervals elapsing between the

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times at which they were determined gives the daily rates contained in the column "*Apparent Rate Between Groups.*" Finally, the "*Adopted Daily Rate*" for each observing-day is obtained by taking the mean of the apparent rates for the two intervals, one of which precedes and the other follows the epoch of the clock correction. In doing this, however, more weight is given to apparent rates depending upon an interval of one day than to those depending on either greater or less intervals.

Returning to the consideration of the observations of right ascensions, the numbers in the column "*Clock Adopted*" are obtained for each object by using the "*Adopted Daily Rate*" to reduce the "*Clock Corrections from Mean of Observations*" to the instant at which the object was observed. In the rare cases where clock corrections are required for the reduction of isolated observations, they are obtained by interpolating between the "*Clock Corrections Corrected for Personal Equation*" on the nearest preceding and following dates, and applying personal equation to the interpolated value. Usually the same individual observes both the clock-stars and the objects whose right ascensions are required, and then personal equation affects only the clock-rates and very accurate values of it are not essential.

The column "*Apparent Right Ascension*" contains the apparent right ascension of each object, found by adding together its time of transit over the imaginary mean wire, the sum of the instrumental corrections, and the adopted clock correction. The result is therefore in all cases the right ascension of that part of the object which was actually observed.

The column "*Miscellan'us Corrections*" contains

α. For stars whose apparent positions are stated in the American Ephemeris; the correction given by the observation to the right ascension of the Ephemeris.

β. For other stars; the reduction to their mean position for the fictitious epoch 1872.0. This reduction is computed with the constants of the American Ephemeris, and no proper motion is applied.

γ. For the sun, when only one limb has been observed; the sidereal time of its semi-diameter passing the meridian, obtained by correcting the value given in the American Ephemeris, by means of Table XXIV, for the personal equation of the observer to whose work it is to be applied.

δ. For the moon or a planet, when only one limb has been observed; the sidereal time of the semi-diameter passing the meridian, as given in the American Ephemeris.

Passing now to the consideration of the right-hand pages, on which are printed the observations of north polar distance,

The column "*Number*" contains the reference number.

The column "*Circle Division*" contains the degrees and minutes indicated by the horizontal microscope of circle A. Designating them by Ω, the divisions of circle B, actually read by means of its micrometer microscopes, were

For Microscope V,	- - - - - - - - - -	$314^\circ\ 56' - \Omega$
For Microscope VI,	- - - - - - - - - -	$44\ 56 - \Omega$
For Microscope VII,	- - - - - - - - - -	$134\ 56 - \Omega$
For Microscope VIII,	- - - - - - - - - -	$224\ 56 - \Omega$

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Under the general head "*Microscope Microm's*" the columns V, VI, VII, VIII, contain the readings of the microscope micrometers of circle B. The Roman numbers at the heads of the columns correspond to those upon the microscopes which were used during the year. As it is always intended to set the circle so that the reading of these microscopes shall be, as nearly as possible, 10 revolutions, the whole revolutions are not generally recorded unless the readings differ more than 10″ from that quantity. Owing to imperfect adjustment, the whole revolutions given for microscope V do not always apply to all the others; but this can occasion no ambiguity.

Under the general head "*Telescope Micrometer*," the column "*Rev.*" contains for each object the whole revolutions of the zenith-distance micrometer as indicated upon its scale by the close pair of movable declination wires at the first bisection of the object. The center of the field, as marked by the double fixed wires, corresponds to 40 revolutions. The columns 1, 2, 3, 4, 5, contain the corresponding thousandths of a revolution of the micrometer screw as read from its head for each bisection of the object. The vertical wires at which the bisections were made are indicated as follows: For objects within 5° of the pole the columns 1 to 5 refer to the wires C_1 to C_5; but for objects whose polar distance exceeds 5° they refer to the wires I, II, IV, VI, VII. Whenever it is necessary to depart from this rule a foot-note is appended explaining how the bisections were made. The foot-note "Bisections at sets B and D" signifies that for the object to which it is appended the columns 1 to 5 refer to the wires B_1, B_3, C_3, D_1, D_3.

The usual practice is to reduce all the objects in each group of observations by means of the zenith-point correction determined in connection with them. Accordingly, the numbers in the column "*Zenith Point Correction*" have generally been taken without change from the last column of Table E, at the end of this introduction; but in the rare cases where there is a considerable change in the zenith-point correction during an observing-day its value for each object has been obtained from the observed values by interpolation. The construction of Table E has been already explained.

It sometimes happens that a group of observations is made, but, on account of unsteadiness of the mercury or other causes, no nadir point is determined with it. Under such circumstances the requisite zenith-point correction is obtained from the stars in the group by reducing them as if the zenith-point correction were zero, and at the end of the year comparing their mean north polar distances so found with their mean north polar distances resulting from all the other observations made on them during the year. Each star which has been observed on other nights thus furnishes one value of the zenith-point correction, and the mean of all the values so obtained is employed for the final reduction of the whole group. With a sufficient number of stars, this process gives nearly as good results as a zenith-point correction determined in the usual manner.

The column "*Apparent Zenith Distance South*" contains for each object its apparent zenith distance, measured continuously from the zenith toward, or through, the south, to the object. It is the sum of the following quantities:

1. The approximate zenith distance south. When the clamp is east this is equal to the reading of the horizontal microscope of circle A, minus the excess of the mean of the readings of the micrometer microscopes of circle B above ten revolutions.

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When the clamp is west it is equal to 359° 52′, minus the reading of the horizontal microscope of circle A, plus the excess of the mean of the readings of the micrometer microscopes of circle B above ten revolutions.

2. The micrometer equivalent, or, in other words, the correction in arc for the mean of the readings of the zenith-distance micrometer, computed by means of the formula

$$2' \quad 0''.0 + R\ (40.000 - r.)$$

if the clamp is east; or by means of the formula

$$4' \quad 0''.0 - R\ (40.000 - r.)$$

if the clamp is west. In these formula r is the mean of the readings of the zenith-distance micrometer expressed in revolutions and parts of a revolution, R the mean value of one revolution of the screw between the limits r revolutions and 40 revolutions, and the numerical term is a constant added in order to make the zenith-point correction always positive.

In practice the value of this expression is taken from a table, which, when the clamp is east, is constructed as follows: Upon a sheet of paper of convenient size lines are ruled dividing it into seven vertical columns. In the left-hand one the numbers 0, 1, 2, 3, &c., to 60, are written and marked as seconds of arc. At the head of the fourth column, opposite 0″ is written 40.000 revolutions; from this is subtracted the fraction of a micrometer revolution corresponding to 1″, and the remainder is written in the same column opposite 1″; from that remainder the fraction of a revolution corresponding to 1″ is again subtracted, and the remainder written opposite 2″; and by continuing this process the whole table is filled up. Of course, in filling the second and third columns continual additions of the fraction of a revolution corresponding to 1″ are employed instead of subtractions. The table so constructed extends from 47 revolutions, at the head of the second column, to 24 revolutions, at the foot of the seventh column; and the numbers in each column correspond to a range of 1′. The seconds corresponding to each number are fixed, but as yet the minutes have been left indeterminate, and, as they are entirely arbitrary,[1] it is convenient so to assume them as to make the zenith-point correction always positive. For that purpose a nadir observation must be reduced, and thus the minutes necessary to be attributed to its micrometer equivalent to bring the zenith-point correction between the limits + 30″ and + 90″ become known. That number of minutes is written at the head of the column in which the mean of the zenith-distance micrometer readings of the nadir observation in question is found, and the table is completed by writing the consecutive minutes at the heads of the other columns. It is scarcely necessary to add that in the table thus formed the minutes and seconds corresponding to 40.000 revolutions are the constant in the formula for the micrometer equivalent.

When the clamp is west the table is constructed in the manner just described, with the following exceptions: 40 revolutions is written at the head of the sixth col-

[1] This is evident when it is remembered that the corrected circle reading is the sum of the observed circle reading and the micrometer equivalent; and also that the apparent zenith distance south is only affected by the difference between the corrected circle reading for the object and that for the nadir point. Hence, so far as the zenith-distance micrometer is concerned, the quantity entering the apparent zenith distance is the difference of two micrometer equivalents, and this difference will remain the same no matter what constant is added to each equivalent.

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umn opposite 0″, and the numbers from thence to the foot of the seventh column are obtained by continual additions of the fraction of a micrometer revolution corresponding to 1″. The second, third, fourth, and fifth columns are filled by continual subtractions of the same quantity, and the table thus formed extends from 24 revolutions at the head of the second column to 47 revolutions at the foot of the seventh column.

3. The reduction to the meridian on account of the deviation of the path of the object from a great circle; computed by means of the formula

$$\mu = -112.5 \sin 1'' \, i^2 \tan \delta + 1''.80$$
$$= -[6.7367] \, i^2 \tan \delta + 1''.80$$

in which μ is the reduction to the meridian, in seconds of arc; i, the equatorial interval, in seconds of time, between the middle vertical wire and the wire at which the bisection of the object with the zenith-distance micrometer was made; δ, the declination of the object; and 1″.80, a constant added for the purpose of making μ generally positive. In order to save computation, the values of μ have been tabulated for all the vertical wires, and for each degree of declination from one horizon to the other.

Occasionally objects are bisected with the zenith-distance micrometer when they are not at any vertical wire. In such cases the clock-time is noted at the instant of bisection, and the reduction to the meridian is computed by means of the formula

$$\mu = -56.25 \sin 1'' \, I^2 \sin 2\delta + 1''.80$$
$$= -[6.4357] \, I^2 \sin 2\delta + 1''.80$$

in which I is the distance of the object from the meridian at the time the bisection was made, expressed in seconds of time; and the other letters retain the same signification as above.

4. In the case of unsymmetrical observations, the corrections for inclination of wires and motion of object.

The correction for inclination is determined from time to time by means of the formula given on page XXXVII, care being taken to employ a sufficient number of stars to furnish a reliable mean value of $r_{\text{i}} - r_{\text{vii}}$. The correction was sensibly constant during the year. Its amount for each of the vertical wires from I to VII is given on page 3 of the observations.

The correction for motion of object is computed by means of the formula

$$\Delta'\delta = -\frac{\Delta\delta}{3600} \, i \sec \delta = -[6.4437] \, \Delta\delta \, i \sec \delta$$

in which $\Delta'\delta$ is the correction for motion of object, and $\Delta\delta$ the hourly motion of the object in declination, both expressed in seconds of arc; i is the equatorial interval, in seconds of time, between the middle wire and the wire at which the object was bisected; and δ is the declination of the object.

5. For those observations in which wire A or B is used, the correction for the distance of the wire employed from the center of the space between the close pair of declination wires. The amount of this correction at each of the vertical wires from I to VII is given on page 3 of the observations.

6. The zenith-point correction, taken from the preceding column.

The corrections for flexure and division errors are omitted from the reductions,

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and applied once for all to the concluded mean places of the stars, and to the apparent places of the sun, moon, and planets.

The column "*Sympiesometer*" contains the observed readings of that instrument. Two or three times during each observing-day, readings of the open-air thermometer, the barometer, and the attached thermometer were made simultaneously with a reading of the sympiesometer, in order to determine the value of the scale of the latter. These readings are recorded at the foot of the same page with, and with the same reference numbers as, the readings of the sympiesometer to which they correspond.

The column "*Refraction*" contains the correction for refraction, computed by means of Bessel's formula, using only four places of decimals in the logarithms, and employing the tables given in the Appendix to the Washington Observations for 1845. The computation with these tables has been considerably abridged by obviating the necessity for taking out the three logarithms corresponding to the readings of the open-air thermometer, the barometer, and the attached thermometer. This has been done by the use of the sympiesometer, in the following manner: Whenever simultaneous readings were made of the sympiesometer, open-air thermometer, barometer, and attached thermometer, the readings of the three latter instruments were employed to compute the sum of the logarithms, and this sum evidently corresponded to the reading of the former instrument. The equivalent of the scale-reading having thus been determined at many different points, these equivalents were plotted as ordinates (the corresponding scale-readings being the abscissas), and a smooth curve was traced, as nearly as possible, through their extremities. From this curve the adopted values of the scale-readings were read, and are as follows for observations made prior to March 19:

Reading of Sympiesometer.	Logarithm.	Reading of Sympiesometer.	Logarithm.
800	0.0675	920	0.0818
820	.0695	940	.0847
840	.0717	960	.0878
860	.0740	980	.0912
880	.0764	1000	.0950
900	.0790		

After March 19 the zero of the sympiesometer became so unstable that the value of its scale had to be determined for each day from the observations made during that day. This was probably owing to some minute imperfection of the tube, which allowed air to pass out and in; but it gave rise to so much trouble that the use of the instrument was finally abandoned.

When an object was too near the horizon to permit its refraction being regarded simply as a function of the height of the sympiesometer, the refraction was computed in the usual way.

The numbers in the column "*Apparent North Polar Distance*" were formed for each object by correcting its apparent zenith distance south for refraction, and then

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adding it to the co-latitude in the case of a direct observation, or subtracting it in the case of a reflection one. The adopted co-latitude is $+ 51^\circ\ 6'\ 21''.2$.

The column "*Miscellan'us Corrections*" contains.

α. For stars whose apparent positions are stated in the American Ephemeris; the correction given by the observation to the north polar distance of the Ephemeris.

β. For other stars; the reduction to their mean position for the fictitious epoch 1872.0. This reduction is computed with the constants of the American Ephemeris, and no proper motion is applied.

γ. For the asteroids; the correction for parallax, computed by means of the formula

$$p = \frac{8''.85 \times 0.9987}{\Delta} \sin (\zeta' - d\varphi) = - \frac{8''.837}{\Delta} \sin (\zeta' - d\varphi)$$

in which p is the correction for parallax; Δ, the distance between the centers of the earth and asteroid, expressed in terms of the earth's mean distance from the sun as unity; ζ', the apparent zenith distance of the asteroid, corrected for refraction; $d\varphi$, the angle of the vertical, which is $11'\ 14''.5$ at Washington; $8''.85$, the adopted value of the sun's mean equatorial horizontal parallax; and 0.9987, the distance from the transit circle to the center of the earth. The values of Δ are taken from the Berliner Jahrbuch.

For the sun, moon, and planets other than the asteroids, the corrections for parallax, semi-diameter, and defective illumination are given at the foot of the pages containing the observations.

All corrections for parallax, except those of the asteroids, are computed from the data contained in the American Ephemeris; using for the sun and planets, the formula

$$p = [9.9994]\ \pi \sin (\zeta' - d\varphi)$$

and for the moon, the formulæ

$$\sin p' = [9.999430] \sin \pi \sin (\zeta' - d\varphi)$$
$$\delta p = \frac{p' \mp s}{2} \sin p \sin s$$
$$p = p' \mp \delta p$$

in which the upper signs must be taken for the upper limb, and the lower signs for the lower limb. π is the moon's equatorial horizontal parallax; s, the moon's apparent semi-diameter; and [9.999430], the logarithm of the distance between the transit circle and the earth's center. The other letters have the same signification as above. Table XI gives the values of δp to the arguments π and p.

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TABLE XI.—*Values of* δp.

p	Upper Limb Observed.			Lower Limb Observed.		
	Value of π.			Value of π.		
	54′	58′	62′	54′	58′	62′
′	″	″	″	″	″	″
0	+ 0.02	+ 0.02	+ 0.02	0.00	0.00	0.00
10	.00	.00	+ .01	+ .01	+ .01	+ .01
15	.00	.00	.00	.02	.02	.02
20	.00	.00	.00	.03	.03	.03
25	− .01	− .01	− .01	.04	.04	.04
30	.02	.02	.02	.05	.05	.06
35	.03	.03	.03	.06	.07	.08
40	.04	.04	.04	.08	.09	.10
45	.05	.05	.05	.10	.11	.12
50	− 0.07	− 0.07	− 0.07	+ 0.12	+ 0.13	+ 0.14

When both limbs of an object have been observed, half the difference between their apparent north polar distances is the correction for semi-diameter; but when only a single limb has been observed, the correction is taken from the American Ephemeris. In the case of the sun, however, the semi-diameters taken from the Ephemeris are corrected by means of Table XXIV for the personal equation of the observer to whose work they are to be applied.

The corrections for defective illumination are computed from the data of the American Ephemeris by means of formulæ given in a subsequent part of this introduction.

CORRECTIONS TO THE RIGHT ASCENSIONS AND NORTH POLAR DISTANCES OF THE AMERICAN EPHEMERIS, GIVEN BY INDIVIDUAL OBSERVATIONS OF STARS WITH THE TRANSIT CIRCLE.

The tables containing these corrections are to be found on pages 215 to 231, and exhibit (1) the date of each observation and (2) the initial of the observer, the latter being given to facilitate any discussion of personal peculiarities.

Next follows the correction to the right ascension, which is copied, without change, from the last column of the left-hand page of the observations. In the case of clock-stars, it is not put down unless it depends either on three other clock-stars, or on one or two stars distant more than six hours in right ascension. In this and the following column, an interrogation-mark signifies that the result is doubtful; an *r*, that it is rejected on account of discordance.

The next column contains the correction to the polar distance, also copied from the last column of the observations, without change, except for erroneous micrometer revolutions.

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The mean polar distances thus found still require the following corrections, which have not been applied in the reductions:

1. For error of division.
2. For flexure.
3. For possible constant error in zenith point.
4. For possible error of assumed latitude.

The corrections for errors of division were determined in November and December, 1865. They are given in the following table,[1] which contains for each circle the correction to be applied to the mean of the readings of its own four micrometer microscopes, in order to free this mean from the effect of errors of division. The argument for entering the table is the reading of the horizontal microscope belonging to the circle for which the correction is desired. If this reading exceeds 90° it must be brought into the first quadrant by subtracting from it 90°, 180°, or 270°, as may be necessary.

[1] Extracted from the Washington Observations for 1865, Description of Transit Circle, § 72.

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TABLE XII.—*Correction which must be applied to the Mean of the Readings of the Four Micrometer Microscopes, in order to free that Mean from the effect of Errors of Division.*

[Argument.—Reading of Horizontal Microscope belonging to Circle for which correction is required.]

Arg.	Circle A.	Circle B.	Arg.	Circle A.	Circle B.	Arg.	Circle A.	Circle B.
°	"	"	°	"	"	°	"	"
0	+ 0.12	+ 0.30	30	−0.16	+ 0.27	60	− 0.05	+ 0.22
1	+ 0.06	+ 0.23	31	−0.23	+ 0.24	61	+ 0.05	+ 0.26
2	0.00	+ 0.18	32	−0.29	+ 0.22	62	+ 0.05	+ 0.28
3	− 0.05	+ 0.18	33	− 0.32	+ 0.19	63	+ 0.05	+ 0.27
4	− 0.11	+ 0.22	34	− 0.35	+ 0.15	64	+ 0.02	+ 0.25
5	− 0.17	+ 0.27	35	− 0.37	+ 0.11	65	0.00	+ 0.22
6	− 0.10	+ 0.27	36	− 0.36	+ 0.12	66	+ 0.02	+ 0.22
7	− 0.02	+ 0.26	37	− 0.36	+ 0.15	67	+ 0.09	+ 0.22
8	0.00	+ 0.26	38	− 0.36	+ 0.14	68	+ 0.15	+ 0.22
9	+ 0.04	+ 0.27	39	− 0.29	+ 0.08	69	+ 0.14	+ 0.23
10	+ 0.07	+ 0.29	40	− 0.22	+ 0.02	70	+ 0.08	+ 0.24
11	+ 0.08	+ 0.29	41	− 0.17	− 0.07	71	− 0.03	+ 0.25
12	+ 0.10	+ 0.29	42	− 0.12	− 0.12	72	− 0.12	+ 0.27
13	+ 0.13	+ 0.36	43	− 0.06	− 0.13	73	− 0.12	+ 0.28
14	+ 0.20	+ 0.44	44	− 0.02	− 0.07	74	− 0.05	+ 0.31
15	+ 0.28	+ 0.52	45	+ 0.02	− 0.01	75	+ 0.04	+ 0.35
16	+ 0.27	+ 0.56	46	0.00	0.00	76	+ 0.04	+ 0.40
17	+ 0.24	+ 0.57	47	− 0.02	0.00	77	+ 0.02	+ 0.45
18	+ 0.23	+ 0.57	48	− 0.04	0.00	78	0.00	+ 0.46
19	+ 0.20	+ 0.52	49	− 0.04	+ 0.06	79	+ 0.01	+ 0.45
20	+ 0.18	+ 0.48	50	− 0.04	+ 0.12	80	+ 0.12	+ 0.44
21	+ 0.17	+ 0.49	51	− 0.08	+ 0.12	81	+ 0.16	+ 0.41
22	+ 0.16	+ 0.52	52	− 0.22	+ 0.12	82	+ 0.17	+ 0.38
23	+ 0.10	+ 0.53	53	− 0.20	+ 0.13	83	+ 0.18	+ 0.36
24	− 0.02	+ 0.50	54	− 0.16	+ 0.14	84	+ 0.19	+ 0.36
25	− 0.14	+ 0.46	55	− 0.12	+ 0.15	85	+ 0.20	+ 0.36
26	− 0.18	+ 0.44	56	− 0.12	+ 0.16	86	+ 0.23	+ 0.40
27	− 0.22	+ 0.42	57	− 0.12	+ 0.17	87	+ 0.25	+ 0.44
28	− 0.24	+ 0.40	58	− 0.12	+ 0.19	88	+ 0.25	+ 0.44
29	− 0.20	+ 0.34	59	− 0.12	+ 0.20	89	+ 0.19	+ 0.37
						90	+ 0.12	+ 0.30

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This table was formed from observations taken with the micrometer microscopes in their normal positions; that is, at the extremities of two diameters which intersect each other at right angles, and each of which makes an angle of 45° with the vertical. If, from any cause, they are ever differently arranged, the table as here given will no longer be applicable.

Let

R_0 = reading shown, when the telescope is pointed to the zenith, by the horizontal microscope belonging to the circle with which an object was observed.

Δ = observed north polar distance of that object. For objects below the pole, $360° - \Delta$ must be substituted instead of Δ. For objects observed by reflection, the numerical value of Δ is the same as if they had been observed directly.

Then Table XIII furnishes for all possible cases, 1st, the argument with which to enter Table XII in order to find the correction which must be applied to the observed north polar distance to free it from the effect of errors of division; and, 2d, the sign of that correction; the words "same" and "changed" indicating respectively that it is the same as, or the opposite to, that given in Table XII. m is a whole number so taken as to bring the argument into the first quadrant.

TABLE XIII.

Clamp.	Circle.	Observation.	Argument.	Sign of Correction.
			° °	
West.	A.	Direct.	$R_0 + 51.1 - \Delta - m \times 90$	Changed.
		Reflection.	$R_0 + 38.9 + \Delta - m \times 90$	Same.
	B.	Direct.	$R_0 + 38.9 + \Delta - m \times 90$	Same.
		Reflection.	$R_0 + 51.1 - \Delta - m \times 90$	Changed.
East.	A.	Direct.	$R_0 + 38.9 + \Delta - m \times 90$	Same.
		Reflection.	$R_0 + 51.1 - \Delta - m \times 90$	Changed.
	B.	Direct.	$R_0 + 51.1 - \Delta - m \times 90$	Changed.
		Reflection.	$R_0 + 38.9 + \Delta - m \times 90$	Same.

The correction to an observed circle reading for flexure of circle is,[1] for circle A

$$+ 0''.37 \sin R - 0''.01 \cos R$$

and for circle B

$$+ 0''.84 \sin R - 0''.86 \cos R$$

where R is the reading given, when the telescope is pointed to the object, by the horizontal microscope belonging to the circle for which the flexure is required. When R_0 is known R can readily be found for any object whose polar distance is given, if the following facts are borne in mind: When the transit circle has the clamp end of its axis to the west, turning the telescope from the zenith toward the southern horizon

[1] Washington Observations for 1865. Description of the Transit Circle, § 61.

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diminishes the reading of circle A, and increases the reading of circle B. When the clamp end of the axis is to the east, turning the telescope from the zenith toward the southern horizon increases the reading of circle A, and diminishes the reading of circle B.

However, it will generally be more convenient to have the formula so arranged as to give the correction which must be applied to an observed north polar distance in order to free it from the effect of circle flexure, and to have this correction itself expressed as a function of the north polar distance. For that purpose the correction to circle A may be written

$$+ 0''.37 \sin (R - 1^\circ\ 33')$$

and that to circle B

$$+ 1''.20 \sin (R - 45^\circ\ 40')$$

Substituting for R its value, and making the changes of sign indicated in Table XIII, we obtain the desired expressions, which are given for all possible cases in the following table:

TABLE XIV.—*Formulæ for computing the Correction which must be applied to an Observed North Polar Distance in order to free it from the effect of Flexure of Circle.*

Clamp.	Circle.	Observation.	Formula.
			$''$ $^\circ$
West.	A.	Direct.	$- 0.37 \sin (R_0 + 49.6 - \Delta)$
		Reflection.	$+ 0.37 \sin (R_0 + 127.4 + \Delta)$
	B.	Direct.	$+ 1.20 \sin (R_0 + 263.2 + \Delta)$
		Reflection.	$- 1.20 \sin (R_0 + 185.4 - \Delta)$
East.	A.	Direct.	$+ 0.37 \sin (R_0 + 307.4 + \Delta)$
		Reflection.	$- 0.37 \sin (R_0 + 229.6 - \Delta)$
	B.	Direct.	$- 1.20 \sin (R_0 + 5.4 - \Delta)$
		Reflection.	$+ 1.20 \sin (R_0 + 83.2 + \Delta)$

In the latter part of 1872 and the beginning of 1873 a series of observations were made to determine the constant for sine-flexure of the telescope. The process employed was as follows: The caps which close the openings through the central cube of the telescope having been removed, so that the collimators might be visible from each other, the telescope was clamped at a zenith distance of 90° south, and the close pair of wires of its zenith-distance micrometer were set at 35 revolutions. Then the south collimator, to which the telescope was thus directed, was adjusted in altitude till its horizontal wire bisected the space between the close pair of wires of the zenith-distance micrometer. Things being thus arranged, three careful pointings were made with the micrometer upon the horizontal wire of the collimator, and while this was

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being done two assistants read the micrometer microscopes of circle B. The telescope was then unclamped and pointed to the zenith, and the two collimators being thus rendered intervisible, the micrometer of the north one was turned until the intersection of its cross-wires accurately covered the horizontal wire of the south one. To make this possible the north collimator was previously rotated 90° in its Ys, thus placing its micrometer screw vertically. Then the telescope was pointed to the north collimator, and a set of readings was taken as described above. After that the telescope was again pointed to the zenith; the adjustment of the south collimator was deranged, and it was adjusted afresh upon the north one, and another set of readings was taken with the telescope micrometer; and so on until a sufficient number of sets of readings were obtained, always taking special care before observing a collimator to derange it and to adjust it afresh upon the one which was last observed.

The observations made in the manner just described are contained in Table XV. Throughout the whole series the collimators were pointed upon each other, and the zenith-distance micrometer of the telescope was read by Professor Harkness. The microscopes of circle B were read by Professor Eastman and Mr. Frisby.

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TABLE XV.—*Observations to Determine the Constant for Sine-Flexure of the Telescope of the Transit Circle.*

Collimator.	Circle A.	Circle B.	Telescope Micrometer.	Micrometer Equivalent.	Observed Z. D. South.	Δ
		October 24, 1872.				
	° ′	″	r.	′ ″	° ′ ″	″
S.	269 56	27.42	36.393	3 4.57	89 59 1.99	+ 0.56
N.	89 56	10.60	35.572	2 51.95	269 59 2.55	
S.	269 56	5.10	35.918	2 57.26	89 59 2.36	− 0.25
N.	89 56	5.42	35.880	2 56.69	269 59 2.11	
S.	269 56	27.68	36.397	3 4.63	89 59 2.31	+ 0.06
N.	89 56	20.58	36.862	3 11.79	269 59 2.37	
S.	269 56	5.90	35.800	2 55.46	89 59 1.36	+ 0.48
N.	89 56	2.55	36.050	2 59.29	269 59 1.84	
S.	269 56	8.45	35.660	2 53.31	89 59 1.76	− 0.62
N.	89 56	6.88	35.722	2 54.26	269 59 1.14	
S.	269 56	7.15	35.720	2 54.23	89 59 1.38	− 0.23
N.	89 56	5.15	35.835	2 56.00	269 59 1.15	
S.	269 56	10.50	35.488	2 50.66	89 59 1.16	− 0.37
N.	89 56	10.02	35.495	2 50.77	269 59 0.79	
S.	269 56	9.88	35.525	2 51.23	89 59 1.11	− 0.56
N.	89 56	8.60	35.572	2 51.95	269 59 0.55	
S.	269 56	8.80	35.565	2 51.84	89 59 0.64	+ 0.40
N.	89 56	8.58	35.605	2 52.46	269 59 1.04	
S.	269 56	8.00	35.652	2 53.18	89 59 1.18	− 1.06
N.	89 56	6.12	35.705	2 54.00	269 59 0.12	
		November 27, 1872.				
N.	89 56	3.32	34.903	2 41.68	269 58 45.00	− 1.16
S.	269 56	3.85	34.945	2 42.31	89 58 46.16	
N.	89 56	3.40	34.937	2 42.18	269 58 45.58	− 0.38
S.	269 56	4.30	34.902	2 41.66	89 58 45 96	
N.	89 56	2.25	35.002	2 43.18	269 58 45.43	+ 0.37
S.	269 56	3.38	34.903	2 41.68	89 58 45.06	
N.	89 56	2.78	34.915	2 41.86	269 58 44.64	− 0.37
S.	269 56	4.10	34.853	2 40.91	89 58 45.01	
N.	89 56	2.65	34.912	2 41.81	269 58 44.46	− 0.10
S.	269 56	2.58	34.923	2 41.98	89 58 44.56	
N.	89 56	2.65	34.858	2 40.98	269 58 43.63	− 0.41
S.	269 56	3.90	34.803	2 40.14	89 58 44.04	
N.	89 56	1.38	34.910	2 41.79	269 58 43.17	− 0.73
S.	269 56	2.58	34.880	2 41.32	89 58 43.90	
N.	89 56	1.12	34.910	2 41.79	269 58 42.91	+ 0.02
S.	269 56	2.98	34.788	2 39.91	89 58 42.89	
N.	89 56	3.08	34.828	2 40.52	269 58 43.60	+ 0.95
S.	269 56	2.82	34.783	2 39.83	89 58 42.65	
N.	89 56	3.35	34.793	2 39.98	269 58 43.33	+ 0.72
S.	269 56	3.32	34.748	2 39.29	89 58 42.61	

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TABLE XV.—*Observations to Determine the Constant for Sine-Flexure, &c.*—Continued.

Collimator.	Circle A.	Circle B.	Telescope Micrometer.	Micrometer Equivalent.	Observed Z. D. South.	Δ
	° ′	″	r.	′ ″	° ′ ″	″
May 7, 1873.						
N.	269 56	0.35	34.951	3 17.31	269 59 16.96	+ 1.37
S.	89 56	29.75	35.080	3 15.34	89 59 15.59	
N.	269 56	27.05	35.147	3 14.31	269 59 17.26	− 0.11
S.	89 56	4.95	34.624	3 22.32	89 59 17.37	
N.	269 56	4.52	34.580	3 23.00	269 59 18.48	+ 1.37
S.	89 56	2.35	34.811	3 19.46	89 59 17.11	
N.	269 56	29.05	34.971	3 17.00	269 59 17.95	+ 0.59
S.	89 56	0.95	34.886	3 18.31	89 59 17.36	
N.	269 56	28.72	34.980	3 16.87	269 59 18.15	+ 0.30
S.	89 56	29.58	34.943	3 17.43	89 59 17.85	
May 19, 1873.						
S.	89 56	2.32	34.410	3 25.60	89 59 23.28	+ 0.79
N.	269 56	2.68	34.335	3 26.75	269 59 24.07	
S.	89 56	2.98	34.287	3 27.47	89 59 24.49	+ 1.65
N.	269 56	2.78	34.193	3 28.92	269 59 26.14	
S.	89 56	0.48	34.410	3 25.60	89 59 25.12	+ 0.03
N.	269 56	2.05	34.305	3 27.20	269 59 25.15	
S.	89 56	1.80	34.378	3 26.09	89 59 24.29	+ 1.15
N.	269 56	0.70	34.375	3 26.14	269 59 25.44	
S.	89 56	2.02	34.315	3 27.05	89 59 25.03	+ 0.09
N.	269 56	2.72	34.263	3 27.84	269 59 25.12	
S.	89 56	1.82	34.328	3 26.86	89 59 25.04	+ 0.42
N.	269 56	3.00	34.223	3 28.46	269 59 25.46	

In the first column of Table XV the letters N and S indicate the collimator to which the telescope was directed; N indicating the north one, S the south one. The column "*Circle A*" contains the reading of the horizontal microscope of circle A. The column "*Circle B*" contains the mean of the readings of the four micrometer microscopes of circle B. The column "*Telescope Micrometer*" contains the mean of the three readings of the telescope micrometer upon the horizontal wire of the collimator. The column "*Micrometer Equivalent*" contains the micrometer equivalent corresponding to the reading of the telescope micrometer given in the preceding column. The column "*Observed Z. D. South*" contains the observed zenith distance south of the horizontal wire of the collimator, to which the telescope was pointed. For the observations made in 1872 it is equal to 359° 52′, minus the reading of the horizontal microscope of circle A, plus the excess of the mean of the readings of the micrometer microscopes of circle B above ten revolutions, plus the micrometer equivalent; and for the observations made in 1873 it is equal to the reading of the horizontal microscope of circle A,

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minus the excess of the mean of the readings of the micrometer microscopes of circle B above ten revolutions, plus the micrometer equivalent. The numbers in the column "Δ" are explained below.

Let

Z = observed zenith distance of any object counted from the zenith around by the south.

F_t = correction necessary to free Z from the effects of sine flexure of the telescope.

F_c = correction for flexure of circle B at 141°.1 of north polar distance.

Δ = observed zenith distance south of the horizontal wire of the north collimator, minus observed zenith distance south of the horizontal wire of the south collimator, minus 180°; as given in Table XV.

Then

$$F_t = \sin Z \, (\tfrac{1}{2}\Delta - F_c)$$

During 1872 the position of the transit circle was clamp west, and when the telescope pointed to the zenith the horizontal microscope of circle B read 0°. With these arguments Table XIV gives

$$F_c = + 1''.20 \sin 44°.3 = + 0''.839$$

During 1873 the clamp was east, and when the telescope pointed to the zenith the horizontal microscope of circle B read 42°.8. With these arguments Table XIV gives

$$F_c = - 1''.20 \sin 267°.1 = + 1''.199$$

Taking the mean of the values of Δ in each of the series of observations given in Table XV, and collecting our results, we have

TABLE XVI.

Date.	$\frac{1}{2}\Delta$	F_c	$\frac{1}{2}\Delta - F_c$
1872.	" "	"	"
Oct. 24	− 0.080 ± 0.06	+ 0.839	− 0.919
Nov. 27	− 0.055 ± 0.07	0.839	0.894
May 7	+ 0.352 ± 0.10	1.199	0.934
19	+ 0.344 ± 0.09	+ 1.199	− 0.855

With regard to the observations of May 7, it should be remarked that the point of the wires of the north collimator actually observed upon appeared in the field of view of the transit circle telescope midway between wires III and IV; while the point of the wires of the south collimator actually observed upon appeared midway between wires IV and V. Consequently the value of $\frac{1}{2}\Delta$ given in Table XVI requires a correction of − 0''.087 on account of inclination of wires. This correction has been applied in computing the value of $\frac{1}{2}\Delta - F_c$. The quantities after the sign ±, in the column "$\frac{1}{2}\Delta$," are probable errors. Giving each value of $\frac{1}{2}\Delta - F_c$ a weight inversely proportional to the square of the probable error of $\frac{1}{2}\Delta$, and then taking the mean, we obtain finally

$$\tfrac{1}{2}\Delta - F_c = - 0''.90 \pm 0''.010$$

and

$$F_t = - 0''.90 \sin Z$$

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The most accurate method of investigating the cosine flexure of the telescope is that of comparing the zenith distances found for the same stars with the instrument in opposite positions. Such a comparison of the results for 1866 and 1867, indicated that the telescope tube itself, or, more precisely, the line joining the center of the object-glass and the fixed horizontal wires, is sensibly free from cosine flexure. This result is probably very nearly correct; and further, its error, if any exist, will be eliminated from the mean of two consecutive years' work with the instrument.

On May 10, 1873, a series of observations were made to determine the correction which must be applied to an observed zenith distance south in order to free it from the effect of gravity in changing the position of the declination micrometer-slide relatively to the fixed plates of the eye-piece. The process employed was as follows: The telescope was set at 0° zenith distance; the zenith-distance micrometer was moved till the space between its close pair of wires was bisected by one of the fixed horizontal wires; and the micrometer was read. Then the telescope was set at 10° zenith distance, and the micrometer was again read in the manner just described; and so on at every ten degrees, throughout the circle. The observations, together with their reduction, are given in Table XVII.

TABLE XVII.

Z. D. South.	Micrometer Read. I.	Z. D. South.	Micrometer Read. II.	II−I=σ	Sin Z. D. S.	Cos Z. D. S.	σ Sin Z. D. South.	σ Cos Z. D. South.
°	r.	°	r.	r.			r.	r.
0	39.745	180	39.775	+ 0.030	0.000	+ 1.000	0.000	+ 0.030
10	.735	190	.775	.040	+ 0.174	0.985	+ 0.007	.039
20	.740	200	.780	.040	.342	.940	.014	.038
30	.730	210	.785	.055	.500	.866	.028	.048
40	.730	220	.780	.050	.643	.766	.032	.038
50	.725	230	.785	.060	.766	.643	.046	.039
60	.730	240	.780	.050	.866	.500	.043	.025
70	.730	250	.780	.050	.940	.342	.047	.017
80	.730	260	.780	.050	0.985	+ 0.174	.049	+ 0.009
90	.740	270	.780	.040	1.000	0.000	.040	0.000
100	.740	280	.780	.040	0.985	− 0.174	.039	− 0.007
110	.740	290	.775	.035	.940	.342	.033	.012
120	.750	300	.770	+ 0.020	.866	.500	+ 0.017	− 0.010
130	.760	310	.760	0.000	.766	.643	0.000	0.000
140	.765	320	.755	− 0.010	.643	.766	− 0.006	+ 0.008
150	.765	330	.745	.020	.500	.866	.010	.017
160	.765	340	.735	.030	.342	.940	.010	.028
170	39.770	350	39.740	− 0.030	+ 0.174	− 0.985	− 0.005	+ 0.030
							+ 0.395	+ 0.366
							− 0.031	− 0.029
						Sums	+ 0.364	+ 0.337

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The different columns of this table are sufficiently explained by their headings.

Let

$Z =$ observed zenith distance of any object counted from the zenith around by the south;

$F_m =$ correction, in seconds of arc, necessary to free Z from the effect of gravity in changing the position of the declination-micrometer slide relatively to the fixed plates of the eye-piece;

$n =$ number of equidistant zenith distances at which the micrometer was read, in this case 36;

$r_0 = 15''.3$, which is the mean value of one revolution of the micrometer screw.

Then

$$F_m = -\sin Z\, r_0 \frac{\Sigma(\sigma \sin Z)}{\frac{1}{2}n} \pm \cos Z\, r_0 \frac{\Sigma(\sigma \cos Z)}{\frac{1}{2}n}$$

Substituting for the letters their values from Table XVII, we obtain

$$F_m = -0''.31 \sin Z \pm 0''.29 \cos Z$$

where the upper sign of the cosine term is to be taken when the clamp is west, and the lower sign when the clamp is east. The probable error of this expression is

$$\pm 0''.007$$

As there is no sensible cosine flexure of the telescope tube, the total correction which must be applied to an observed zenith distance south, or to an observed north polar distance, in order to free it from the effect of gravity on the telescope tube and micrometer, is $F_t + F_m$. But, from the manner in which these quantities were determined, the sine term in the expression for F_m is already included in the expression for F_t.

Hence,

$$F_t + F_m = -0''.90 \sin Z \pm 0''.29 \cos Z$$

where the upper sign of the cosine term is to be taken when the head of the zenith-distance micrometer is below the screw when the telescope looks south—that is, when the clamp is west; and the lower sign is to be taken when the micrometer head is above the screw when the telescope looks south—that is, when the clamp is east. The probable error of this expression is

$$\pm 0''.012$$

When an object is observed by reflection, the surface of the mercury is usually about eight feet from the axis of the instrument. Hence, owing to the convexity of a level surface, the zenith distance obtained is too small by $0''.16 \sin Z$. Allowing for this in the expression given above, the correction for flexure of telescope and curvature of level to be applied to a north polar distance found from a reflection observation is

$$+ 1''.06 \sin Z \pm 0''.29 \cos Z$$

where Z is measured from the reflected zenith point.

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These expressions may be written thus:

For a direct observation, clamp west - - $-0''.95 \sin (Z - 17^\circ\ 50')$
For a reflection observation, clamp west - $+1''.10 \sin (Z + 15^\circ\ 20')$
For a direct observation, clamp east - - $-0''.95 \sin (Z + 17^\circ\ 50')$
For a reflection observation, clamp east - $+1''.10 \sin (Z - 15^\circ\ 20')$

Substituting for Z its value, $\Delta - 51^\circ.1$, we obtain formulæ very convenient for use, which are given in the following table:

TABLE XVIII.—*Formulæ for computing the Correction which must be applied to an Observed North Polar Distance in order to free it from the effect of Flexure of Telescope and Curvature of Level.*

Clamp.	Observation.	Formula.
West	Direct	$-0''.95 \sin (\Delta - 68^\circ.9)$
	Reflection	$+1''.10 \sin (\Delta - 35^\circ.8)$
East	Direct	$-0''.95 \sin (\Delta - 33^\circ.3)$
	Reflection	$+1''.10 \sin (\Delta - 66^\circ.4)$

The correction for constant error in the zenith point is obtained from a comparison of the direct and reflection observations, assuming that the true polar distance of any star is the mean of the values resulting from these two methods of observation.

If D and R represent the north polar distance of any star as found respectively from direct and reflection observations, corrected for errors of graduation and flexure; and if ΔZ represents the zenith-point correction, then

$$2\,\Delta Z = D - R$$

Thus, each star which has been observed, both directly and by reflection, furnishes one equation of condition for determining the value of ΔZ, and from all the equations thus formed the final value of ΔZ is obtained. But before this can be done, weights must be introduced, because, in general, the number of observations will vary from star to star. Giving to a single observation the weight unity, it has been assumed that for n observations

$$\text{Weight} = \frac{12\,n}{n + 11}$$

which amounts to supposing that each star is affected with a probable constant error nearly one-third as great as the accidental error of an individual observation. But if p' and p'' are respectively the weights of two quantities, the weight of the sum or difference of these quantities is

$$\frac{p'\,p''}{p' + p''}$$

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Hence, if there are m direct and n reflection observations of any star, and p is the weight to be given to the zenith-point correction derived from it, then

$$p = \frac{12mn}{2mn + 11\,(m+n)}$$

Our equations of condition therefore take the form

$$2p\,\Delta Z = p\,(D - R)$$

and we have finally

$$\Delta Z = \frac{\Sigma\{p\,(D-R)\}}{2\Sigma p}$$

where Σ is the sign of summation. The correction to the observed north polar distances on account of error in the assumed zenith point is therefore

To direct observations, $-\Delta Z$
To reflection observations, $+\Delta Z$

The correction for error of assumed latitude is derived from stars observed both above and below the pole, upon the assumption that the polar distances obtained in these two positions must be identical. The process employed is similar to that used in finding the correction for constant error in the zenith point.

Let $\Delta\varphi$ represent the correction to the assumed latitude, and let U and L represent the north polar distance of any star as found respectively from observations made above and below the pole, corrected for errors of graduation, flexure, and assumed zenith point. Then that star furnishes the equation of condition

$$2\Delta\varphi = U + L - 360^\circ$$

where L is measured from the pole through the zenith and nadir to the star. If the star has been observed m times above and n times below the pole, the weight p of this equation is

$$\frac{12mn}{2mn + 11\,(m+n)}$$

and the weighted equation is

$$2p\,\Delta\varphi = p\,(U + L - 360^\circ)$$

As each star observed both above and below the pole furnishes an equation of condition of this form, we have finally

$$\Delta\varphi = \frac{\Sigma\{p\,(U + L - 360^\circ)\}}{2\Sigma p}$$

where Σ is the sign of summation. Hence, if φ is the assumed latitude, the true latitude is $\varphi + \Delta\varphi$; and the correction to the observed north polar distances on account of error in the assumed latitude is $-\Delta\varphi$, the sign being the same for reflection observations as for direct ones.

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As observations were made only during the last five months of 1871, the instrument was not reversed at the beginning of 1872, but was allowed to remain in the same position from July, 1871, till January 1, 1873. Therefore only one set of systematic corrections has been determined for the whole of that period.

During the years 1871 and 1872 the transit circle stood with the clamp end of its axis toward the west, and polar distances were measured by means of circle B, whose horizontal microscope read 0° 0′ 0″ when the telescope pointed to the zenith. With these data the systematic corrections to the observed north polar distances were obtained as follows:

Table XIII gives $38°.9 + \Delta - m \times 90°$ for direct, and $51°.1 - \Delta - m \times 90°$ for reflection observations, as the arguments with which to enter Table XII in order to find the corrections for errors in the graduation of the circle. The results for each degree of north polar distance are given in the column "*Division Correction*" of Table XXII.

Table XIV gives $+1''.20 \sin (263°.2 + \Delta)$ for direct, and $-1''.20 \sin (185°.4 - \Delta)$ for reflection observations, as the formulæ for computing the corrections for flexure of circle B. Table XVIII gives $-0''.95 \sin (\Delta - 68°.9)$ for direct, and $+1''.10 \sin (\Delta - 35°.8)$ for reflection observations, as the formulæ for computing the corrections for flexure of telescope and curvature of level. After a simple reduction the sums of these formulæ become, for direct observations, $-0''.57 \sin (\Delta + 32°.0)$, and for reflection ones, $-0''.61 \sin (\Delta + 60°.5)$, by means of which expressions the quantities contained in the column "*Flexure*" of Table XXII were computed.

The computation of the correction for constant error in the zenith point is given in Table XIX. The first column contains the names of all stars observed, both directly and by reflection, during the years 1871 and 1872. These stars are divided into two groups, one embracing those which culminated north, the other those which culminated south of the zenith. The second column contains the mean values of the north polar distances given by direct observations; and the third column, the seconds of the mean values of the north polar distances given by reflection observations. The small subscript figures indicate the number of observations made on each star. The fourth column contains the excess of the seconds in the second column over those in the third column. The fifth column contains the corrections which must be applied to the numbers in the fourth column to free them from the effects of errors of graduation, flexure of telescope and circle, and erroneous value of zenith point.[1] Each of these corrections is the sum of the following quantities taken from Table XXII, namely:

Division and Flexure Corrections for Direct Observations — Division and Flexure Corrections for Reflection Observation $+ 0''.58$

The sixth column contains the sums of the quantities in the fourth and fifth columns; or, in other words, the values of twice the correction for constant error in the

[1] It has been already explained that the zenith-point corrections used during 1871 and 1872 were all too small by $0''.29$.

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zenith point. The seventh column contains the weights of the values of $2\Delta Z$ given in the sixth column. The eighth column contains the values of $2p\Delta Z$. The final results are

From observations north of the zenith - - - - - $\Delta Z = +1''.31$
From observations south of the zenith - - - - - $\Delta Z = -0''.14$

Thus it appears that somewhere near the zenith this correction changes its value to the enormous amount of $1''.45$, which cannot but be regarded as a very suspicious circumstance.

TABLE XIX.—*Computation of the Value of ΔZ from the Observations made in the Years 1871 and 1872.*

Name of Star.	Observed North Polar Distance. Direct.	Observed North Polar Distance. Reflection.	$D-R$	Corr. to $D-R$	$2\Delta Z$	Weight $=p$	$2p\Delta Z$
NORTHERN STARS.	° ′ ″	″	″	″	″		″
ε Ursæ Minoris. .	7 45 16.38_{6}	16.26_{1}	+ 0.12	+ 0.66	+ 0.78	0.80	+ 0.62
4 Draconis . . .	11 40 0.84_{3}	59.81_{1}	1.03	0.93	1.96	0.72	1.41
79 Draconis . . .	16 54 28.76_{5}	27.54_{2}	1.22	1.04	2.26	1.25	2.82
β Cephei	20 0 19.60_{5}	17.75_{3}	1.85	1.17	3.02	1.52	4.59
ι Cassiopeæ. . .	23 10 46.94_{4}	44.72_{1}	2.22	1.40	3.62	0.76	2.75
9 Camelopardalis .	23 52 51.30_{1}	50.10_{1}	1.20	1.41	2.61	0.50	1.30
ι Cephei	24 28 40.39_{4}	38.39_{1}	2.00	1.40	3.40	0.76	2.58
α Cephei	27 57 40.25_{8}	39.90_{2}	0.35	1.44	1.79	1.35	2.42
α Cassiopeæ. . .	34 10 15.65_{1}	12.15_{1}	3.50	1.20	4.70	0.50	2.35
α Cygni	45 10 46.90_{14}	45.09_{2}	+ 1.81	+ 1.24	+ 3.05	1.45	+ 4.42
SOUTHERN STARS.							
α Andromedæ . .	61 37 18.52_{19}	22.08_{2}	− 3.56	+ 1.26	− 2.30	1.48	− 3.40
ε Bootis	62 22 50.96_{21}	50.81_{1}	+ 0.15	1.26	+ 1.41	0.88	+ 1.24
α Arietis	67 8 55.52_{29}	57.14_{1}	− 1.62	1.37	− 0.25	0.90	− 0.22
β Arietis	69 49 24.79_{21}	26.04_{3}	1.25	1.20	0.05	1.94	0.10
α Pegasi	75 29 18.19_{28}	20.56_{1}	− 2.37	1.18	− 1.19	0.90	− 1.07
γ Pegasi	75 32 1.51_{17}	1.03_{1}	+ 0.48	1.18	+ 1.66	0.88	+ 1.46
ε Delphini . . .	79 8 0.57_{14}	2.56_{3}	− 1.99	1.13	− 0.86	1.86	− 1.60
γ Aquilæ. . . .	79 41 57.49_{30}	57.65_{1}	0.16	1.08	+ 0.92	0.90	+ 0.83
ε Pegasi	80 42 54.93_{20}	56.40_{2}	1.47	0.96	− 0.51	1.49	− 0.76
α Orionis. . . .	82 37 10.14_{18}	10.72_{1}	0.58	0.86	+ 0.28	0.88	+ 0.25
α Canis Minoris. .	84 26 47.37_{31}	48.35_{1}	0.98	0.76	− 0.22	0.90	− 0.20
ζ Virginis . . .	89 56 7.78_{19}	8.87_{1}	1.09	0.62	0.47	0.88	0.41
α Aquarii. . . .	90 56 44.43_{9}	45.67_{2}	− 1.24	0.55	− 0.69	1.37	− 0.95
β Orionis. . . .	98 21 9.98_{23}	9.72_{1}	+ 0.26	+ 0.23	+ 0.49	0.89	+ 0.44

The computation of the correction for error in the assumed value of the latitude is given in Table XX, whose construction is so analogous to that of Table XIX, that

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it does not require description. The letters and symbols at the heads of the columns have the same signification as in the preceding general formula. The final result is

$$\text{Correction to Assumed Latitude} = -1''.00$$

It is absolutely certain that the assumed latitude is not in error to any such extent In order to discover where the difficulty lies, we employ the formula given on page , by means of which we find

$$\text{Latitude from Direct Observations} = +38^\circ\ 53'\ 39''.11$$
$$\text{Latitude from Reflection Observations} = +38^\circ\ 53'\ 36''.49$$

This, taken in connection with the values found above for ΔZ, renders it almost certain that there is something abnormal in the reflection observations. As a final test, Table XXI has been prepared.

TABLE XX.—*Computation of the Value of $\Delta\varphi$ from the Observations made in the Years 1871 and 1872.*

Name of Star.	Observed North Polar Distance.		$U+L-360^\circ$	Corr. to $U+L-360^\circ$	$2\Delta\phi$	Weight $= p$	$2p\Delta\phi$
	Upper Culmination.	L. C.					
	° ′ ″	″	″	″	″		″
λ Ursæ Minoris .	1 4 46.25	14.27_{20}	+ 0.52	− 2.48	− 1.96	3.90	− 7.64
Polaris . . .	1 22 41.70	17.87_{68}	− 0.43	2.50	2.93	5.11	14.97
51 Cephei . . .	2 45 41.16	19.58_{17}	+ 0.74	2.61	1.87	3.36	6.28
δ Ursæ Minoris .	3 23 37.29	22.55_{19}	− 0.16	2.65	2.81	3.99	11.21
32^2 Camelopardalis .	5 53 9.94	51.72_{4}	+ 1.66	2.47	0.81	1.60	1.30
ε Ursæ Minoris .	7 45 16.38	43.04_{2}	− 0.58	2.41	2.99	1.29	3.86
1 Draconis . . .	8 6 25.70	34.25_{2}	− 0.05	2.40	2.45	1.17	2.87
12-Year Cat. 1879	9 55 58.92	59.28_{2}	− 1.80	2.23	4.03	0.65	2.62
4 Draconis . . .	11 40 0.84	59.44_{2}	+ 0.28	2.08	1.80	1.08	1.94
48 Cephei . . .	12 44 36.44	24.61_{3}	+ 1.05	2.08	1.03	1.60	1.65
79 Draconis . . .	16 55 28.76	30.51_{2}	− 0.73	1.94	− 2.67	1.25	− 3.34
50 Cassiopeæ . .	18 12 19.85	43.00_{2}	+ 2.85	1.95	+ 0.90	1.08	+ 0.97
δ Draconis . . .	22 33 55.33	5.33_{1}	+ 0.66	1.76	− 1.10	0.82	− 0.90
ο Cephei . . .	22 35 39.04	19.86_{2}	− 1.10	1.75	2.85	0.65	1.85
ι Cassiopeæ . .	23 10 46.94	12.91_{3}	− 0.15	1.76	1.91	1.52	2.90
5 Ursæ Minoris .	23 43 50.19	10.80_{5}	+ 0.99	1.80	− 0.81	1.52	− 1.23
9 Camelopardalis .	23 52 51.30	10.60_{1}	+ 1.90	1.81	+ 0.09	0.50	+ 0.04
32 Ursæ Majoris .	24 14 59.16	0.29_{1}	− 0.55	1.83	− 2.38	0.65	− 1.55
ι Cephei . . .	24 28 40.39	19.96_{2}	+ 0.35	1.86	1.51	1.17	1.77
α Draconis . . .	25 0 25.59	34.54_{1}	+ 0.13	1.91	1.78	0.80	1.42
Groombridge 3241	27 54 20.87	39.98_{2}	+ 0.85	− 2.06	− 1.21	1.08	− 1.31

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TABLE XXI.—*Comparison of the Standard Places of certain Stars, with their Places obtained from Direct and from Reflection Observations made in the Years* 1871 *and* 1872.

Name of Star.	Standard Correction to Amer. Ephem.	Observed Correction to Amer. Ephemeris.		C − O.	
		Direct.	Reflection.	Direct.	Reflection.
NORTHERN STARS.					
	″	″	″	″	″
ε Ursæ Minoris . .	− 0.25	− 0.17	− 0.95	− 0.08	+ 0.70
4 Draconis	1.90	1.56	3.53	0.34	1.63
79 Draconis	0.96	0.17	2.43	0.79	1.47
β Cephei	0.93	0.88	3.91	− 0.05	2.98
ι Cassiopeæ . . .	− 0.74	− 0.98	4.61	+ 0.24	3.87
9 Camelopardalis . .	+ 0.44	+ 1.38	1.23	− 0.94	1.67
ι Cephei	− 0.50	0.07	3.34	0.57	+ 2.84
α Cephei	0.93	1.06	0.73	1.99	− 0.20
α Cassiopeæ . . .	− 0.08	1.25	3.46	− 1.33	+ 3.38
α Cygni	+ 0.48	+ 0.09	− 2.96	+ 0.39	+ 2.48
SOUTHERN STARS.					
α Andromedæ . . .	+ 1.26	+ 0.29	+ 2.59	+ 0.97	− 1.33
ε Bootis	1.35	0.85	− 0.56	0.50	+ 1.91
α Arietis	0.86	0.56	+ 0.81	0.30	0.05
β Arietis	1.91	0.52	0.57	1.39	+ 1.34
α Pegasi	1.81	1.15	+ 2.34	0.66	− 0.53
γ Pegasi	1.46	0.80	− 0.84	0.66	+ 2.30
ε Delphini	1.23	0.05	+ 0.92	1.18	0.31
γ Aquilæ	1.68	0.35	− 0.56	1.33	2.24
ε Pegasi	1.58	0.38	− 1.01	1.20	2.59
α Orionis	1.61	+ 0.61	+ 0.33	1.00	1.28
α Canis Minoris . .	1.09	− 0.34	− 0.12	1.43	1.21
ζ Virginis	1.59	+ 0.70	+ 1.18	0.89	+ 0.41
α Aquarii	1.17	0.65	+ 1.33	0.52	− 0.16
β Orionis	+ 1.13	+ 0.10	− 0.21	+ 1.03	+ 1.34

The first column of this table contains the names of certain Nautical Almanac stars, which are the same as those contained in the corresponding column of Table XIX. The second column contains the corrections which must be applied to the places given for these stars by the American Ephemeris in order to reduce them to the standard places given in Professor Newcomb's catalogue on pages 41 to 43 of Appendix III, to the Washington observations for 1867. The third and fourth columns contain the corrections to the places given in the American Ephemeris, deduced respectively from the direct, and from the reflection observations, made during the years 1871 and 1872. The latitude used in obtaining these corrections is that given by the direct observations, namely + 38° 53′ 39″.11. The fifth and sixth columns contain, for direct and for reflection observations, the values of the computed minus the observed corrections; the standard corrections being regarded as the computed ones. Taking the means of the values of C — O, we have

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For northern stars observed directly - - - C − O = − 0″.55
For northern stars observed by reflection - - C − O = + 2 .08
For southern stars observed directly - - - C − O = + 0 .93
For southern stars observed by reflection - - C − O = + 0 .93

It thus appears that south of the zenith the direct and reflection observations give identical results, while north of the zenith they give results discordant to the amount of 2″.63. The only possible inference is that the reflection observations north of the zenith were subject to a large constant error. To discover how that error originated would be most desirable, but thus far it has baffled all our efforts. The suggestion has been thrown out that the radiant heat from the persons of the observers may have produced some flexure of the telescope tube, but it is scarcely possible that this source of error could have been sensible. The reflection observations were made with even greater care than the direct ones, and there was no difference in the mode of working on the two sides of the zenith. Under these circumstances it has been thought best to reject all the reflection observations made during the two years in question.

Collecting our results; if the reflection observations had been retained, the total systematic correction to be applied to a north polar distance observed during the years 1871 and 1872 would have been

For objects north of the zenith:

Observed directly - - Div. Cor. − 0″.57 sin (Δ + 32.°0) + 0″.29 − 1″.31 + 1″.00
Observed by reflection Div. Cor. − 0″.61 sin (Δ + 60°.5) − 0″.29 + 1″.31 + 1″.00

For objects south of the zenith:

Observed directly - - Div. Cor. − 0″.57 sin (Δ + 32°.0) + 0″.29 + 0″.14 + 1″.00
Observed by reflection Div. Cor. − 0″.61 sin (Δ + 60°.5) − 0″.29 − 0″.14 + 1″.00

Rejecting the reflection observations, ΔZ disappears, and $\Delta\varphi$ becomes + 0″.31 instead of − 1″.00. Making these changes in the formula just given, we obtain as the final value of the total systematic correction to be applied to any north polar distance observed directly during the years 1871 and 1872

Division Correction − 0″.57 sin (Δ + 32°.0) + 0″.29 − 0″.31

The numerical values of this expression are given in Table XXII to the argument north polar distance. As the total corrections are made up of three very different classes of quantities, it has been thought best to tabulate the individual components as well as their sums. Accordingly, the column "*Division Correction*" contains the corrections for errors in the division of circle B. The column "*Flexure*" contains the sums of the corrections for flexure of circle B, flexure of telescope, effect of gravity on the movable parts of the zenith-distance micrometer, and, in the case of reflection observations, curvature of a level surface. The column "*Latitude, Zenith Point, &c.,*" contains the sums of the corrections for error in the assumed value of the latitude, and erroneous constant used in computing the zenith-point corrections from the nadir observations. Finally, the column "*Total*" contains the sums of the quantities in the three preceding columns, and these sums are the corrections to the observed north polar distances given on the lines "*Div., Flex., etc.,*" on pages 215 to 231. Table XXII also gives the division and flexure corrections for those stars which were observed by reflection, but no use has been made of them.

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TABLE XXII.—*Systematic Corrections to be applied to the Reduced North Polar Distances of Objects observed in the Years* 1871–'72.

DIRECT OBSERVATIONS.

N. P. D.	Division Correction.	Flexure.	Latitude, Zenith Point, &c.	Total.	N. P. D.	Division Correction.	Flexure.	Latitude, Zenith Point, &c.	Total.
°	″	″	″	″	°	″	″	″	″
0	+ 0.09	− 0.30	− 0.02	− 0.23	40	+ 0.45	− 0.54	− 0.02	− 0.11
1	+ 0.03	.31	.02	.30	41	.44	.54	.02	.12
2	− 0.06	.32	.02	.40	42	.41	.55	.02	.16
3	.12	.33	.02	.47	43	.38	.55	.02	.19
4	.13	.34	.02	.49	44	.36	.55	.02	.21
5	− 0.08	− 0.34	− 0.02	− 0.44	45	+ 0.36	− 0.56	− 0.02	− 0.22
6	− 0.02	.35	.02	.39	46	.36	.56	.02	.22
7	.00	.36	.02	.38	47	.40	.56	.02	.18
8	.00	.37	.02	.39	48	.44	.56	.02	.14
9	.00	.37	.02	.39	49	.44	.56	.02	.14
10	+ 0.05	− 0.38	− 0.02	− 0.35	50	+ 0.38	− 0.56	− 0.02	− 0.20
11	.11	.39	.02	.30	51	.31	.57	.02	.28
12	.12	.40	.02	.30	52	.24	.57	.02	.35
13	.12	.40	.02	.30	53	.18	.57	.02	.41
14	.13	.41	.02	.30	54	.18	.57	.02	.41
15	+ 0.14	− 0.42	− 0.02	− 0.30	55	+ 0.22	− 0.57	− 0.02	− 0.37
16	.15	.42	.02	.29	56	.27	.57	.02	.32
17	.16	.43	.02	.29	57	.27	.57	.02	.32
18	.17	.44	.02	.29	58	.26	.57	.02	.33
19	.19	.44	.02	.27	59	.26	.57	.02	.33
20	+ 0.20	− 0.45	− 0.02	− 0.27	60	+ 0.27	− 0.57	− 0.02	− 0.32
21	.22	.46	.02	.26	61	.29	.57	.02	.30
22	.26	.46	.02	.22	62	.29	.57	.02	.30
23	.28	.47	.02	.21	63	.29	.57	.02	.30
24	.27	.47	.02	.22	64	.35	.57	.02	.24
25	+ 0.25	− 0.48	− 0.02	− 0.25	65	+ 0.43	− 0.57	− 0.02	− 0.16
26	.22	.48	.02	.28	66	.51	.56	.02	.07
27	.22	.49	.02	.29	67	.56	.56	.02	.02
28	.22	.49	.02	.29	68	.57	.56	.02	.01
29	.22	.50	.02	.30	69	.57	.56	.02	.01
30	+ 0.23	− 0.50	− 0.02	− 0.29	70	+ 0.42	− 0.56	− 0.02	− 0.16
31	.24	.51	.02	.29	71	.48	.56	.02	.10
32	.25	.51	.02	.28	72	.49	.55	.02	.08
33	.27	.52	.02	.27	73	.52	.55	.02	.05
34	.28	.52	.02	.26	74	.53	.55	.02	.04
35	+ 0.31	− 0.52	− 0.02	− 0.23	75	+ 0.50	− 0.54	− 0.02	− 0.06
36	.35	.53	.02	.20	76	.46	.54	.02	.10
37	.40	.53	.02	.15	77	.44	.54	.02	.12
38	.45	.54	.02	.11	78	.42	.54	.02	.14
39	.46	.54	.02	.10	79	.40	.53	.02	.15

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TABLE XXII.—*Systematic Corrections, &c.*—Continued.

DIRECT OBSERVATIONS.

N. P. D.	Division Correction.	Flexure.	Latitude, Zenith Point, &c.	Total.	N. P. D.	Division Correction.	Flexure.	Latitude, Zenith Point, &c.	Total.
°	″	″	″	″	°	″	″	″	″
80	+ 0.35	− 0.53	− 0.02	− 0.20	120	+ 0.23	− 0.27	− 0.02	− 0.06
81	.28	.53	.02	.27	121	.24	.26	.02	− 0.04
82	.24	.52	.02	.30	122	.25	.25	.02	− 0.02
83	.22	.52	.02	.32	123	.27	.24	.02	+ 0.01
84	.19	.51	.02	.34	124	.28	.23	.02	.03
85	+ 0.15	− 0.51	− 0.02	− 0.38	125	+ 0.31	− 0.22	− 0.02	+ 0.07
86	.11	.50	.02	.41	126	.35	.21	.02	.12
87	.12	.50	.02	.40	127	.40	.20	.02	.18
88	.15	.49	.02	.36	128	.45	.20	.02	.23
89	.14	.49	.02	.37	129	.46	.19	.02	.25
90	+ 0.09	− 0.48	− 0.02	− 0.41	130	.45	.18	.02	.25
91	+ 0.03	.48	.02	.47					
92	− 0.06	.47	.02	.55	330	+ 0.27	− 0.02	− 0.02	+ 0.23
93	.12	.47	.02	.61	331	.29	.03	.02	.24
94	.13	.46	.02	.61	332	.29	.04	.02	.23
95	− 0.08	− 0.46	− 0.02	− 0.56	333	.29	.05	.02	.22
96	− 0.02	.45	.02	.49	334	.35	.06	.02	.27
97	.00	.44	.02	.46	335	+ 0.43	− 0.07	− 0.02	+ 0.34
98	.00	.44	.02	.46	336	.51	.08	.02	.41
99	.00	.43	.02	.45	337	.56	.09	.02	.45
100	+ 0.05	− 0.42	− 0.02	− 0.39	338	.57	.10	.02	.45
101	.11	.42	.02	.33	339	.57	.11	.02	.44
102	.12	.41	.02	.31	340	+ 0.52	− 0.12	− 0.02	+ 0.38
103	.12	.40	.02	.30	341	.48	.13	.02	.33
104	.13	.40	.02	.29	342	.49	.14	.02	.33
105	+ 0.14	− 0.39	− 0.02	− 0.27	343	.52	.15	.02	.35
106	.15	.38	.02	.25	344	.53	.16	.02	.35
107	.16	.37	.02	.23	345	+ 0.50	− 0.17	− 0.02	+ 0.31
108	.17	.37	.02	.22	346	.46	.18	.02	.26
109	.19	.36	.02	.19	347	.44	.19	.02	.23
110	+ 0.20	− 0.35	− 0.02	− 0.17	348	.42	.20	.02	.20
111	.22	.34	.02	.14	349	.40	.20	.02	.18
112	.26	.34	.02	.10	350	+ 0.35	− 0.21	− 0.02	+ 0.12
113	.28	.33	.02	.07	351	.28	.22	.02	+ 0.04
114	.27	.32	.02	.07	352	.24	.23	.02	− 0.01
115	+ 0.25	− 0.31	− 0.02	− 0.08	353	.22	.24	.02	.04
116	.22	.30	.02	.10	354	.19	.25	.02	.08
117	.22	.29	.02	.09	355	+ 0.15	− 0.26	− 0.02	− 0.13
118	.22	.28	.02	.08	356	.11	.27	.02	.18
119	.22	.28	.02	.08	357	.12	.28	.02	.18
					358	.15	.28	.02	.15
					359	.14	.29	.02	.17
					360	.09	.30	.02	.23

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TABLE XXII.—*Systematic Corrections, &c.*—Continued.

REFLECTION OBSERVATIONS.

Name of Star.	Division Correction.	Flexure.	Latitude, Zenith Point, &c.	Total.
	″	″	″	″
α Andromedæ . . .	— 0.44	— 0.52		
γ Pegasi	.22	.42		
α Cassiopeæ . . .	.25	.61		
β Arietis	.26	.47		
α Arietis	.31	.48		
ι Cassiopeæ . . .	— 0.40	— 0.61		
9 Camelopardalis .	— .42	.61		
β Orionis	+ .13	.22		
α Orionis	— .20	.37		
α Canis Minoris . .	— .17	.35		
4 Draconis . . .	— 0.05	— 0.58		
ζ Virginis	— .12	.30		
ε Bootis	— .45	.51		
ε Ursæ Minoris . .	+ .11	.56		
γ Aquilæ	— .27	.39		
ε Delphini . . .	— 0.28	— 0.40		
α Cygni	.27	.59		
α Cephei	.52	.61		
β Cephei	.24	.60		
ε Pegasi	.24	.38		
79 Draconis . . .	— 0.14	— 0.59		
α Aquarii	.12	.30		
ι Cephei	.43	.61		
α Pegasi	.22	.44		

The assumed value of the latitude being $+38^\circ\ 53'\ 38''.8$, the final value given by any year's work is $+38^\circ\ 53'\ 38''.80 + \Delta\varphi$. But the observed north polar distances employed in computing $\Delta\varphi$ had previously been corrected for constant error in the zenith point. Hence, if it is desired to separate the results of the direct observations from those of the reflection ones, we have

Latitude from Direct Observations, - - $= +38^\circ\ 53'\ 38''.80 + \Delta\varphi + \Delta Z$

Latitude from Reflection Observations - $= +38^\circ\ 53'\ 38''.80 + \Delta\varphi - \Delta Z$

in which the value of ΔZ is that given by stars culminating north of the zenith, such being the position of those used in computing $\Delta\varphi$. By means of these expressions, the following table has been computed:

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TABLE XXIII.—*Latitude of the Transit Circle as given respectively by the Direct and Reflection Observations made during each Year that the Instrument has been in use.*

Year.	Latitude from Direct Observations.	Latitude from Reflection Observations.	Mean.
	° ′ ″	° ′ ″	″
1866	+ 38 53 38.73	+ 38 53 37.67	38.20
1867	39.16	37.48	38.32
1868	38.69	37.73	38.21
1869	38.62	38.90	38.76
1870	38.71	39.57	39.14
1871 } 1872 }	39.11	36.49	37.80

It thus appears that while the values given by the direct observations are quite uniform, those given by the reflection ones vary greatly; and this of course tends to throw suspicion upon the latter class of observations, and also upon the latitudes derived from them. However, the concluded values of the north polar distances have always been reduced to what they would have been if measured from a visible pole, and consequently they are independent of any error in the latitude.

It may also be remarked that had the reflection observations been entirely rejected, there would have been no systematic differences between the polar distances of northern objects then deduced and those actually concluded, while the actually concluded polar distances of southern objects would have been changed by the quantity

$$\{-\Delta Z \text{ given by Northern Stars} + \Delta Z \text{ given by Southern Stars}\}$$

the numerical values of which for each year are as follows:

	″
1866,	−0.47
1867,	−0.60
1868,	−0.68
1869,	−0.18
1870,	+0.31
1871, 1872,	0.00

The application of these corrections to the concluded north polar distances of objects culminating south of the zenith will reduce them to values not differing *systematically* from those which would have been obtained from the direct observations alone.

RIGHT ASCENSIONS, NORTH POLAR DISTANCES, AND SEMI-DIAMETERS OF THE SUN, MOON, AND PLANETS, DEDUCED FROM OBSERVATIONS WITH THE TRANSIT CIRCLE, AND COMPARED WITH THE TABLES.

These results are given on pages 291 to 299, and require very little explanation. When both limbs of an object presenting a fully illuminated disk have been

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observed, the right ascension of its center is the mean of the values given for the two limbs in that column of the observations which is headed "*Apparent Right Ascension.*" When only one limb has been observed, and that was fully illuminated, the right ascension of the center is derived from that of the limb by applying to it the sidereal time of the semi-diameter passing the meridian, as given in the column "*Miscellan'us Corrections.*"

If one of the limbs observed was defective, the observed difference of right ascension of limbs is multiplied by the computed ratio of this difference to the true semi-diameter, and the observed semi-diameter thus deduced is applied to the right ascension of the full limb to obtain that of the center. The formulæ employed are as follows: Let

i = elongation of earth and sun as seen from planet;
$b = \cos i$;
δ, δ' = declinations of planet and sun;
A = difference of right ascensions of planet and sun;
θ = angle which the line of cusps makes with the meridian;
f, f' = factors by which measured horizontal and vertical diameters must be multiplied to obtain true semi-diameters.

Then, to find f, we have

$$\tan \theta = \frac{\cos \delta \tan \delta'}{\sin A} - \frac{\sin \delta}{\tan A}$$

When the planet is gibbous

$$g = \cos \theta \sqrt{b^2 + \tan^2 \theta} = \cos \theta'' \quad \text{when } \sin \theta'' = \cos \theta \sin i$$
$$g' = \sin \theta \sqrt{b^2 + \cot^2 \theta} = \cos \theta' \quad \text{when } \sin \theta' = \sin \theta \sin i$$
$$f = \frac{1}{1+g}$$
$$f' = \frac{1}{1+g'}$$

When the illuminated disk is a crescent,

$$g = \cos \theta; \quad f = \frac{1}{1+g}$$
$$g' = \sin \theta; \quad f' = \frac{1}{1+g'}$$

When the center of light of Mercury has been observed, the reduction to the center of the planet is denoted by ε, and its value is obtained from the empirical formulæ

$$n = \frac{(1-b)(5+b)}{12}$$

In R. A. - - - - - - - - ε = semi-diam. $\times n \cos \theta$
In N. P. D. - - - - - - - - ε = semi-diam. $\times n \sin \theta$

The north polar distances are reduced from the part actually observed to the center in the same way as the right ascensions, and by the formulæ and numbers just given, but the following further corrections are applied to them:

1. The parallax in altitude found at the foot of the pages of observations.
2. The corrections for division, flexure, and latitude, taken from Table XXII.

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A discussion of all the semi-diameters of the sun measured during the year 1872 gave the following results for personality. However, it should be remarked that in the case of Harkness the result depends upon a single observation only.

TABLE XXIV.—*Corrections which must be applied to the Semi-diameters of the Sun given in the American Ephemeris in order to reduce them to the Semi-diameters actually found from the Mean of all the Measures made by each Observer in the Year* 1872.

Observer.	Sidereal Time of Semi-diameter passing the Meridian.	Vertical Semi-diameter.
	s.	″
Harkness . . .	— 0.08	— 2.3
Eastman. . . .	— 0.05	— 0.1
Frisby.	— 0.03	— 0.7
Stone	— 0.04	— 0.6

Whenever only one limb of the sun was observed, the quantity contained in that column of the observations headed "*Miscellan'us Corrections*" is the semi-diameter given in the American Ephemeris corrected by means of the above table.

As the places of the moon for the time of its transit at Washington are not given, either in the American Ephemeris or in the English Nautical Almanac, they are computed from each of these works in the following manner: The observed right ascension of the center, considered as sidereal time, is reduced to Washington mean time; or in case the polar distance only is observed, the Washington mean time of transit of center is taken at once from the "*Moon Culminations*" of the American Ephemeris. Increasing the quantity thus found by $5^h\ 8^m\ 12^s$ converts it into Greenwich mean time, with which as an argument, the tabular place is interpolated from the hourly ephemeris for Greenwich. The places thus found from the American Ephemeris and from the English Nautical Almanac are respectively those of Peirce's and Hansen's tables.

In the case of the major planets, the numbers in the columns "*Corr'n to Am. Eph.*" are obtained by subtracting from each observed position, or semi-diameter, the corresponding position, or semi-diameter, given in the American Ephemeris for the instant of transit at Washington.

The places of Venus, according to Le Verrier's tables, are obtained by applying to the positions given in the American Ephemeris for the time of transit at Washington, the differences between the positions for Greenwich noon, given respectively in that Ephemeris and in the English Nautical Almanac. As a check, a place is occasionally interpolated directly from the latter work.

The observed positions of the minor planets are compared with the ephemerides of the Berlin Jahrbuch. For that purpose the observed time of transit is converted into Washington mean time, and then increased by $6^h\ 1^m.8$, which reduces it to Berlin mean time. From this is subtracted the "aberration time," $-[0.9148]\ \Delta$, usually given in the Ephemeris, and the result is the Berlin mean time at which the light left the planet. The position of the planet for this instant is interpolated from the ephemeris in the Jahrbuch and compared with the observed place.

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TABLE A.—*Absolute Determinations of the Collimation Constant of the Transit Circle, made in the Year* 1872.

Date.	M	M'	$M+M'$	$0.512 \times (M+M')$	c_τ	τ	$+0.004\tau$	c_0
1872.	r.	r.	r.	s.	s.	°	s.	s.
January 4	− 0.308	+ 0.274	− 0.034	− 0.017	− 0.045	42.0	+ 0.168	+ 0.123
19	.426	.405	.021	.011	.039	36.5	.146	.107
February 6	− 0.386	+ 0.342	− 0.044	− 0.023	− 0.051	43.5	+ 0.174	+ 0.123
20	.296	.263	.033	.017	.045	44.0	.176	.131
March 4	− 0.314	+ 0.268	− 0.046	− 0.024	− 0.052	39.5	+ 0.158	+ 0.106
21	.372	.407	+ 0.035	+ 0.018	.010	27.5	.110	.100
April 2	− 0.378	+ 0.204	− 0.174	− 0.089	− 0.117	59.0	+ 0.236	+ 0.119
19	.390	.343	.047	0.024	.052	53.0	.212	.160
May 6	− 0.364	+ 0.221	− 0.143	− 0.073	− 0.101	67.5	+ 0.270	+ 0.169
18	.383	.277	.106	0.054	.082	67.0	.268	.186
31	.393	.238	.155	0.079	.107	72.0	.288	.181
June 8	− 0.318	+ 0.098	− 0.220	− 0.113	− 0.141	86.0	+ 0.344	+ 0.203
24	.277	.084	.193	0.099	.127	77.5	.310	.183
July 8	− 0.344	+ 0.080	− 0.264	− 0.135	− 0.163	78.0	+ 0.312	+ 0.149
24	.362	.048	.314	0.161	.189	79.0	.316	.127
31	.366	+ .114	.252	0.129	.157	78.0	.312	.155
August 20	− 0.212	− 0.102	− 0.314	− 0.161	− 0.189	85.0	+ 0.340	+ 0.151
29	.352	+ 0.125	.227	0.116	.144	72.5	.290	.146
October 4	− 0.294	+ 0.097	− 0.197	− 0.101	− 0.129	71.0	+ 0.284	+ 0.155
24	.359	.236	.123	0.063	.091	55.5	.222	.131
November 9	− 0.339	+ 0.253	− 0.086	− 0.044	− 0.072	52.0	+ 0.208	+ 0.136
December 7	− 0.196	+ 0.175	− 0.021	− 0.011	− 0.039	44.5	+ 0.178	+ 0.139
1873.								
January 4	− 0.240	+ 0.156	− 0.084	− 0.043	− 0.071	44.5	+ 0.178	+ 0.107

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TABLE B.—*Adopted Values of the Collimation, Level, and Azimuth Constants of the Transit Circle in the Year* 1872.

NOTE.—An * indicates that the constant to which it is attached is an interpolated value.

Date.	τ	c	b	a	Date.	τ	c	b	a
1872.	°	s.	s.	s.	1872.	°	s.	s.	s.
January 2.0	43	− 0.06	+ 0.17	+ 0.30	February 25.6	34	− 0.02	− 0.61	− 1.50
5.0	43	.06	.15	.28	26.0	40	.04	.60	1.59
5.5	36	.03	.10	+ 0.28	26.5	34	.02	.57	1.59
9.0	41	.05	.29	− 0.31	27.0	44	.06	.55*	1.53
9.3	33	.02	.38	.31	27.4	31	.01	.52	1.53
10.3	36	− 0.03	+ 0.19	− 0.32	March 1.0	38	− 0.04	− 0.59	− 0.63
12.0	53	.10	.31	.33	5.0	24	+ 0.02	.55	.54
12.4	44	.06	.24	.33	5.4	20	.04	.56	.54
13.1	51	.09	.21*	.55*	6.0	24	.02	.58*	.54
16.2	33	− 0.02	.09	0.91	6.4	25	+ 0.02	.61	.54
17.4	27	+ 0.01	+ 0.03	− 1.12	12.3	33	− 0.02	− 0.65	− 0.71
20.0	48	− 0.08	.04	1.00	16.0	34	.02	.60	.72
22.0	38	.04	.07	1.12	16.3	33	.02	.68	.72
22.5	35	− 0.03	.05	1.12	18.3	39	.04	.62	.68
24.5	22	+ 0.03	.17	1.08	19.3	38	− 0.04	.65	.83
25.0	30	+ 0.00	+ 0.16	− 1.26	20.3	21	+ 0.03	− 0.64	− 0.73
25.5	23	.02	.15	1.26	21.0	30	.00	.58	.73
26.0	30	.00	.13	1.33	21.4	30	.00	.66	.73
26.5	21	.03	.16	1.33	24.4	36	− 0.03	.63	0.66
30.0	24	.02	.05	1.33	27.3	41	.05	− 0.09	1.00
30.7	8	+ 0.08	+ 0.10*	− 1.33	28.0	60	− 0.12	+ 0.03	− 0.63
31.6	12	.07	.16	1.52	28.3	51	.09	.14	.63
February 1.0	24	.02	.13	1.53	29.3	58	.12	.09	0.77
1.7	14	+ 0.06	+ 0.16	1.56*	29.7	.	.12*	.09*	1.08
2.0	35	− 0.02	.00	1.57*	31.7	42	.05	.04	0.89
3.8	32	− 0.01	+ 0.04	− 1.65	April 1.4	40	− 0.04	+ 0.02	− 0.99
5.0	41	.05	+ 0.04	1.30	1.8	38	.04	.00*	.99
5.4	41	.05	− 0.01	1.62	2.0	56	.11	− 0.01	.84
7.0	32	− 0.01	+ 0.12	1.56	2.3	52	.09	.09	.84
7.4	28	.00	.12	1.56	4.0	51	.08	− 0.01	.97
14.0	29	.00	+ 0.26	− 1.59	4.5	36	− 0.02	+ 0.02	− 0.97
14.4	15	+ 0.06	+ 0.20	1.59	5.0	53	.09	+ 0.02	1.09
15.2	23	+ 0.02	− 0.44	1.58*	5.4	44	.05	.00	− 1.09
16.3	36	− 0.03	.47	1.56*	10.0	63	.11	+ 0.18	+ 0.06
19.4	31	.01	.48	1.50	10.4	58	.09	.14	.06
20.4	39	− 0.04	− 0.50	− 1.65	11.0	65	− 0.11	+ 0.14*	+ 0.36
21.4	42	.05	.56	1.47	11.5	56	.08	.14	.36
22.0	36	− 0.03	.57	1.48	13.3	59	.08	.13	.65
22.4	29	.00	.57	1.48	14.2	69	.12	.25	.58
23.4	35	− 0.02	.56	1.49	16.0	46	.02	.20*	.04*

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TABLE B.—*Adopted Values of Collimation, &c.*—Continued.

Date.	τ	c	b	a	Date.	τ	c	b	a
1872.	°	s.	s.	s.	1872.	°	s.	s.	s.
April 16.4	42	.00	+ 0.18	+ 0.04*	May 27.9	69	− 0.10	+ 0.07	− 0.97
17.0	51	− 0.04	.12	− 0.10	28.7	55	.04	.17	0.97
17.3	49	.03	.08	.10	30.4	64	.08	.07	1.10
19.4	51	.03	.07	.32	30.8	64	.08	.06	1.10
20.4	56	.05	.08	.28	31.0	71	.11	.05	0.96
21.5	60	− 0.06	+ 0.12	− 0.23	31.4	62	− 0.05	+ 0.11	− 0.96
22.1	58	− 0.05	.03	.33	31.8	67	.07	.09	1.00
22.4	44	.00	.12	.33	31.9	76	.10	.09	1.01
23.4	48	− 0.02	.11	.50	June 4.4	63	.05	.11	1.02
23.9	66	.09	.07*	.51	6.4	72	.09	.10	0.86
24.4	59	− 0.06	+ 0.03	− 0.51	8.4	78	− 0.11	+ 0.13	− 0.80
25.0	78	.13	.02	.36	10.4	69	.08	.14	.86
25.5	66	.09	.05	.36	11.0	85	.14	.25	.82
29.4	60	.06	.09	.38	11.5	70	.08	.18	.82
29.8	48	.01	.13	.38	12.0	87	.15	.17	.68
30.0	66	− 0.08	+ 0.10	− 0.47	12.3	83	− 0.13	+ 0.22	− 0.68
30.4	58	.05	.10*	.47	13.0	86	.14	.15	.74
May 2.0	76	.12	.03	.60	13.4	78	.11	.24	0.74
2.4	56	.05	.04	.60	17.5	70	.09	.18	1.08
3.0	60	.06	.06	.59	18.1	85	.15	.19	1.06
4.0	58	− 0.05	+ 0.04	− 0.68	18.5	72	− 0.10	+ 0.19	− 1.06
4.4	49	.02	.34	.68	19.3	74	.10	.15	1.06
6.5	68	.09	.02	.65	21.0	87	.16	.17	1.00
7.0	79	.14	.02	.59	26.4	81	.14	.17	0.47
7.4	78	.13	.09	.59	26.8	72	.11	.22	.47
8.0	85	− 0.16	+ 0.11	− 0.53	27.0	88	− 0.17	+ 0.17	− 0.54
8.4	73	.11	.11*	.53	27.8	90	.19	.23	.54
9.5	70	.10	.19	.43	28.0	92	.20	.24	.26
10.5	74	.12	.08	.40	28.4	78	.14	.28	.26
11.0	84	.16	.03	.60	30.9	88	.18	.27	.29
13.4	64	− 0.08	+ 0.13	− 0.43	July 1.4	82	− 0.16	+ 0.28	− 0.29
14.0	71	.11	.03	.70	2.0	96	.23	.25	.30
14.3	69	.10	.10*	.70	2.4	83	.17	.22	.30
14.5	60	.06	.14	.70	2.9	96	.23	.24	.30
16.4	58	.05	+ 0.07	.59	5.0	88	.20	.22	.45
19.4	70	− 0.10	− 0.02	− 0.83	5.3	85	− 0.19	+ 0.20	− 0.45
20.0	80	.14	+ 0.19	.79	5.8	77	.16	.23	.45
20.4	65	.08	.10	.79	5.9	90	.21	.16	.50*
21.4	60	.06	+ 0.09	.73	6.4	81	.17	.19	.50*
23.0	76	.13	.00	.81	8.4	77	.16	.24	.61
23.5	62	− 0.07	+ 0.07	− 0.81	8.7	80	− 0.17	+ 0.19	− 0.61
26.6	58	.06	.10	1.02	9.0	84	.19	.16	.61
27.0	89	.18	.09	1.12	10.4	85	.19	.20	.65*
27.4	62	.07	.08	1.12	12.4	77	.16	.19	.72
27.7	60	.06	.09	1.12	17.9	94	.23	.22	.71

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TABLE B.—*Adopted Values of Collimation, &c.*—Continued.

Date.	τ	c	b	a	Date.	τ	c	b	a
1872.	°	s.	s.	s.	1872.	°	s.	s.	s.
July 19.0	98	− 0.25	+ 0.23	− 0.90	September 18.6	64	− 0.11	+ 0.28	− 1.52
19.5	78	.16	.23	.90	19.4	62	.10	.32	1.48
20.4	71	.14	.21	.73	19.9	68	.13	.28	1.50
22.0	84	.19	.20	.92	20.1	68	.13	.27	1.50
22.5	72	.14	.12	.92	21.3	72	.14	.25	1.46
23.5	74	− 0.15	+ 0.16	− 0.90	23.8	64	− 0.11	+ 0.28	− 1.41
24.4	78	.17	.16	0.80	23.9	78	.17	.23	1.41
25.5	72	.14	.16	1.06	24.0	78	.17	.24	1.41
26.4	86	.20	.22	0.75	24.4	75	.16	.31	1.41
27.0	88	.21	.18	.91	28.3	62	.10	.31	1.33
27.4	70	− 0.13	+ 0.14	− 0.91	30.9	66	− 0.12	+ 0.26	− 1.66
28.5	74	.15	.22	.86	October 2.0	64	.11	.30	1.65
29.5	75	.15	.20	.90	3.0	76	.16	.32	1.61
30.0	87	.20	.22	.70	8.0	66	.12	.35	1.59
30.4	80	.17	.19	0.70	8.9	59	.09	.40	1.56
31.4	83	.18	+ 0.07	− 1.02	9.3	62	− 0.10	+ 0.33	− 1.56
August 2.5	74	− 0.15	.19	0.90*	9.6	54	.07	.42	1.56
3.0	84	.19	.20	.82	9.8	54	.07	.44	1.56
3.4	76	.16	.23	.82	9.9	59	.09	.42	1.56
6.4	75	.15	.23	0.92	9.9	70	.14	.32	1.77
7.0	88	− 0.21	+ 0.17	− 1.06	12.0	56	− 0.08	+ 0.37	− 1.68
7.4	80	.17	.11	1.06	14.3	44	.03	.35*	1.49
9.5	77	.16	.22	1.10	15.9	54	.07	.34	1.55
11.2	94	.23	.16	1.06	16.5	50	.06	.34	1.55
14.0	94	.23	.23	1.00	16.7	50	.06	.37	1.55
17.4	79	− 0.17	+ 0.22	− 1.15	16.9	50	− 0.06	+ 0.35	− 1.55
19.0	90	.21	.12	1.13	18.9	55	.09*	.36*	1.66
21.4	81	.18	.26	1.00	20.9	52	.06	.37	1.50
23.4	76	.16	.23	0.90	21.4	58	.09	.32	1.50
25.7	77	.16	.25	0.92	21.8	52	.06	.34	1.50
26.4	81	− 0.18	+ 0.23	− 1.02	21.9	52	− 0.06	+ 0.33	− 1.50
30.0	74	.15	.23	1.25	26.8	54	.07	.41	0.22
30.4	64	.11	.23	1.25	29.0	52	.06*	.43	.28
30.9	67	.12	.27	1.25	29.4	45	.04	.40	.28
September 3.4	59	.09	.31	1.00	31.4	44	.04	.46	.64
3.9	61	− 0.10	+ 0.14	− 1.00	November 1.3	48	− 0.05	+ 0.46	− 0.60
5.9	71	.14	.21	1.33	4.0	55	.08	.52	.71
6.4	75	.15	.29	1.33	4.4	43	.03	.46	.71
14.4	58	.09	.34	1.40	7.0	57	.09	.45	.53
15.9	68	.13	.31	1.53	7.4	56	.08	.45	.53
16.1	68	− 0.13	+ 0.29	− 1.53	8.0	55	− 0.08	+ 0.42	− 0.57
16.2	59	.09	.22	1.53	8.3	46	.04	.49	.57
16.4	59	.09	.34	1.53	12.4	46	.04	.44	.52
16.8	59	.09	.33	1.53	15.0	42	− 0.02	.47	.48
17.1	78	.17	.31	1.53	15.3	37	.00	.47	.48

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TABLE B.—*Adopted Values of Collimation, &c.*—Continued.

Date.	τ	c	b	a	Date.	τ	c	b	a
1872.	°	s.	s.	s.	1872.	°	s.	s.	s.
November 16.6	30	+ 0.02	+ 0.56	− 0.45	December 4.4	28	+ 0.03	+ 0.57	− 0.60
18.7	25	+ 0.04	.59	.26	5.3	31	+ 0.02	.47	.49
19.0	43	− 0.03	.55	.52	6.0	46	− 0.04	.47	.25
20.3	35	.00	.53	.66	6.3	45	− 0.04	.50	.25
20.8	25	+ 0.04	.52	.66	6.5	38	+ 0.01	.53	.25
23.0	46	− 0.04	+ 0.50	− 0.52	9.4	23	+ 0.05	+ 0.54	− 0.51
23.3	40	− 0.02	.49	.52	10.0	25	.03	.58	.33
23.8	33	+ 0.01	.51	.52	10.4	23	.05	.60	.33
24.8	45	− 0.04	.52	.54	12.5	24	+ 0.04	.60	.49
26.4	39	− 0.01	.52	.56	13.1	37	− 0.01	.51	.34
27.0	43	− 0.03	+ 0.49	− 0.69	13.5	29	+ 0.02	+ 0.55	− 0.34
27.4	39	− 0.01	.42	.69	14.0	43	− 0.04	.52	.43
28.4	36	.00	.61	.53	22.5	16	+ 0.06	.62	.20
December 2.1	53	− 0.07	.48	.51	23.5	30	.00	.59	.36
2.5	47	.04	.44	.51	24.5	12	+ 0.07	.67	.16
4.0	42	− 0.02	.47	.60					

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TABLE C.—*Adopted Corrections to the Positions of the Clock-Stars given in the American Ephemeris for the Year* 1872.

	s.		s.		s.
α Andromedæ	+ 0.02	κ Cancri	— 0.01	γ^2 Sagittarii	+ 0.01
γ Pegasi	.00	α Hydræ	— .03	μ^1 Sagittarii	.00
β Ceti	+ .05	ε Leonis	— .06	η Serpentis	+ .06
ε Piscium	+ .02	μ Leonis	— .01	1 Aquilæ	+ .07
θ^1 Ceti	+ .02	α Leonis	— .04	α Lyræ	+ .02
η Piscium	+ 0.07	γ^1 Leonis	— 0.02	β Lyræ	+ 0.03
0¦ Piscium	— .03	ρ Leonis	— .07	σ Sagittarii	+ .01
β Arietis	+ .02	l Leonis	.00	ζ Aquilæ	+ .08
α Arietis	+ .01	δ Leonis	— .06	d Sagittarii	+ .02
ξ^1 Ceti	+ .04	δ Crateris	— .02	δ Aquilæ	+ .05
γ Ceti	0.00	τ Leonis	— 0.02	κ Aquilæ	+ 0.04
α Ceti	+ .02	v Leonis	— .04	γ Aquilæ	+ .03
ζ Arietis	— .04	β Leonis	— .02	α Aquilæ	+ .04
η Tauri	.00	o Virginis	— .02	β Aquilæ	+ .03
ζ Persei	— .01	η Virginis	— .02	τ Aquilæ	+ .02
γ^1 Eridani	+ 0.04	β Corvi	— 0.04	α^2 Capricorni	+ 0.04
γ Tauri	+ .01	12 Canum Venaticorum	.00	π Capricorni	+ .03
ε Tauri	— .01	θ Virginis	— .04	ε Delphini	+ .05
α Tauri	— .02	α Virginis	— .02	α Cygni	+ .02
ι Aurigæ	— .04	ζ Virginis	.00	μ Aquarii	+ .07
11 Orionis	— 0.07	η Bootis	— 0.05	ν Cygni	+ 0.06
β Orionis	.00	α Bootis	.00	61^1 Cygni	— .04
β Tauri	— .02	ε Bootis	— .02	ζ Cygni	+ .01
δ Orionis	— .03	α^2 Libræ	— .01	1 Pegasi	— .05
α Leporis	— .04	β Libræ	.00	β Aquarii	+ .03
ε Orionis	— 0.01	μ^1 Bootis	— 0.01	ξ Aquarii	+ 0.02
α Columbæ	— .04	α Coronæ Borealis	.00	ε Pegasi	+ .01
α Orionis	— .03	α Serpentis	+ .02	μ Capricorni	+ .03
μ Geminorum	— .04	ε Serpentis	.00	α Aquarii	+ .03
γ Geminorum	— .03	δ Scorpii	+ .01	θ Aquarii	+ .02
α Canis Majoris	— 0.08	β^1 Scorpii	+ 0.03	π Aquarii	+ 0.02
ε Canis Majoris	— .05	δ Ophiuchi	+ .02	η Aquarii	+ .03
δ Canis Majoris	— .05	α Scorpii	— .01	ζ Pegasi	+ .06
δ Geminorum	— .06	ζ Ophiuchi	.00	λ Aquarii	+ .08
α^2 Geminorum	+ .24	η Herculis	+ .01	α Piscis Australis	+ .04
α Canis Minoris	— 0.16	κ Ophiuchi	+ 0.04	α Pegasi	+ 0.03
β Geminorum	— .03	α^1 Herculis	+ .02	θ Piscium	+ .06
ϕ Geminorum	— .08	b Ophiuchi	+ .03	ι Piscium	.00
15 Argus	— .06	α Ophiuchi	+ .03	ω Piscium	+ .01
ε Hydræ	— .04	μ Herculis	.00		

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TABLE D.—*Adopted Corrections and Rates of the Kessels Sidereal Clock in the Year 1872.*

Mean Day and Sidereal Hour.	Observer.	Clock Correction from Mean of Observations.	Clock Correction Corrected for Personal Equation.	Appar'nt Rate between Groups.	Adopted Daily Rate.	Mean Day and Sidereal Hour.	Observer.	Clock Correction from Mean of Observations.	Clock Correction Corrected for Personal Equation.	Appar'nt Rate between Groups.	Adopted Daily Rate.
d. h.		s.	s.	s.	s.	d. h.		s.	s.	s.	s.
Jan. 2 19.0	F.	− 4.83	− 4.85		+ 0.62	Mar. 4 19.7	E.	+ 13.66	+ 13.79		− 0.12
				+ 0.62						− 0.35	
5 5.5	F.	2.74	2.71		0.52	5 5.6	F.	13.61	13.64		− 0.12
				0.42						+ 0.10	
9 22.6	F.	1.19	1.16		0.46	6 4.6	S.	13.75	13.73		+ 0.12
				0.50						0.14	
10 1.9	S.	0.58	0.60		0.32	12 8.0	E.	14.48	14.61		0.20
				0.13						+ 0.27	
12 1.1	E.	− 0.48	− 0.35		0.34	16 4.6	E.	15.53	15.66		0.12
				0.55						− 0.04	
13 22.9	F.	+ 0.12	+ 0.15		0.43	18 7.7	S.	15.60	15.58		0.09
				0.31						+ 0.13	
16 1.7	E.	0.98	1.11		0.45	19 8.1	Ha.	15.85	15.71		0.18
				0.59						0.22	
17 4.4	F.	1.74	1.77		0.46	20 8.5	F.	15.90	15.93		0.32
				0.28						0.42	
19 18.8	E.	2.36	2.49		0.46	21 5.9	E.	16.17	16.30		0.25
				0.59						0.08	
22 5.4	S.	3.93	3.91		0.48	24 10.7	E.	16.44	16.57		0.24
				0.37						0.09	
24 7.8	E.	4.56	4.69		0.26	27 8.2	Ha.	17.83	17.69		0.20
				0.14						0.01	
25 1.3	F.	4.76	4.79		0.18	28 5.0	E.	17.57	17.70		0.04
				0.23						0.08	
26 2.4	S.	5.05	5.03		0.38	29 12.3	F.	17.78	17.81		0.10
				0.54						0.11	
30 2.9	S.	7.20	7.18		0.54	31 19.2	Ha.	18.19	18.05		0.12
										0.14	
31 13.0	Ha.	7.76	7.62		0.59	Apr. 1 13.1	F.	18.26	18.29		0.16
				0.59						0.17	
Feb. 1 2.8	E.	7.83	7.96		0.44	2 6.3	E.	18.28	18.41		0.18
				0.29						0.19	
3 16.9	S.	8.73	8.71		0.24	4 10.1	Ha.	18.95	18.81		0.20
				0.20						0.22	
5 0.9	E.	8.85	8.98		0.28	5 9.0	E.	18.89	19.02		+ 0.15
				0.35						+ 0.08	
7 4.4	S.	9.75	9.73		0.30	10 7.5	F.	19.38	19.41		− 0.02
				0.25						− 0.12	
14 2.9	F.	11.43	11.46		+ 0.52	11 12.4	S.	19.28	19.26		0.12
				+ 0.80						0.11	
15 4.2	S.	12.32	12.30		− 0.04	13 9.5	E.	18.92	19.05		0.21
				− 0.87						0.31	
16 4.8	Ha.	11.55	11.41		− 0.34	14 7.0	F.	18.74	18.77		0.17
				+ 0.18						0.03	
19 7.6	S.	11.98	11.96		+ 0.14	16 11.3	S.	18.73	18.71		0.12
				0.10						0.22	
21 7.5	E.	12.03	12.16		0.15	17 6.5	E.	18.40	18.53		0.14
				0.19						0.05	
22 4.3	F.	12.29	12.32		0.18	19 12.1	Ha.	18.56	18.42		0.06
				0.18						0.08	
23 9.0	S.	12.56	12.54		0.14	20 11.7	S.	18.36	18.34		0.09
				0.10						0.10	
25 12.2	E.	12.63	12.76		0.22	21 13.3	E.	18.10	18.23		0.10
				0.35						− 0.13	
26 8.5	F.	13.02	13.05		0.21	22 10.6	F.	18.09	18.12		− 0.03
				0.07						+ 0.07	
27 8.2	S.	13.14	13.12		0.08	23 11.5	Ha.	18.33	18.19		+ 0.13
				0.09						+ 0.20	
Mar. 1 0.0	F.	+ 13.34	+ 13.37		+ 0.10	24 5.4	S.	+ 18.36	+ 18.34		0.00
				+ 0.11						− 0.20	

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TABLE D.—*Adopted Corrections and Rates of the Kessels Sidereal Clock, &c.*—Continued.

Mean Day and Sidereal Hour.	Observer.	Clock Correction from Mean of Observations.	Clock Correction Corrected for Personal Equation.	Appar'nt Rate between Groups.	Adopted Daily Rate.	Mean Day and Sidereal Hour.	Observer.	Clock Correction from Mean of Observations.	Clock Correction Corrected for Personal Equation.	Appar'nt Rate between Groups.	Adopted Daily Rate.
d. h.		s.	s.	s.	s.	d. h.		s.	s.	s.	s.
Apr. 25 9.7	E.	+ 17.97	+18.10		− 0.19	June 4 14.1	E.	+ 10.16	+10.29		− 0.20
				− 0.18							
29 14.6	E.	17.23	17.36		0.04	4 14.4	S.	10.33	10.31		0.20
				+ 0.11						− 0.22	
30 8.3	F.	17.41	17.44		0.00	6 13.2	E.	9.73	9.86		0.27
				− 0.11							
May 2 10.3	S.	17.24	17.22		0.07	6 14.2	Ha.	10.00	9.86		0.27
				0.25						0.32	
3 3.5	E.	16.91	17.04		0.25	8 13.8	E.	9.09	9.22		0.42
				− 0.26						0.53	
4 10.0	F.	16.68	16.71		0.12	10 14.8	Ha.	8.29	8.15		0.62
				+ 0.01						0.72	
6 16.0	S.	16.75	16.73		0.14	11 14.3	S.	7.47	7.45		0.64
				− 0.28						0.56	
7 7.8	E.	16.42	16.55		0.16	12 9.6	E.	6.87	7.00		0.54
				0.05						0.51	
8 7.4	F.	16.47	16.50		0.14	13 10.7	F.	6.44	6.47		0.51
				0.22						0.51	
9 14.6	Ha.	16.10	15.96		0.24	17 17.0	F.	4.28	4.31		0.45
				0.26						0.39	
10 14.4	S.	15.72	15.70		0.23	18 7.5	S.	4.11	4.09		0.41
				0.20							
11 4.9	E.	15.45	15.58		0.34	18 16.8	Ha.	4.04	3.90		0.41
				0.49						0.43	
13 10.9	E.	14.36	14.49		0.30	19 12.0	S.	3.59	3.57		0.41
										0.39	
13 12.1	F.	14.40	14.43		0.30	21 6.2	F.	+ 2.85	+ 2.88		0.42
				0.10						0.46	
14 3.9	S.	14.47	14.45		0.13	26 19.3	Ha.	− 0.20	− 0.34		0.50
										0.55	
14 10.7	F.	14.35	14.38		0.13	27 15.2	S.	0.78	0.80		0.74
										0.89	
14 14.2	S.	14.31	14.29		0.13	28 9.4	E.	1.60	1.47		0.76
				0.16						0.64	
16 12.7	S.	14.05	14.03		0.14	July 1 13.0	S.	3.54	3.56		0.36
				0.13						0.08	
19 13.4	E.	13.51	13.64		0.28	2 9.5	E.	3.76	3.63		0.16
				0.42						0.23	
20 8.6	F.	13.27	13.30		0.22	2 5.3	F.	3.85	3.82		0.19
				0.02						0.15	
21 14.5	Ha.	13.41	13.27		0.05	5 13.4	S.	4.14	4.16		0.10
				0.08						0.09	
23 14.9	S.	13.12	13.10		0.16	6 9.2	E.	4.36	4.23		0.10
				0.23						0.10	
26 20.0	S.	12.38	12.36		0.26	8 17.1	Ha.	4.42	4.56		0.05
				0.30						0.10	
27 16.6	E.	12.05	12.18		0.40	8 1.0	S.	4.40	4.42		0.05
										0.01	
27 2.2	F.	11.88	11.91		0.40	10 16.3	E.	4.64	4.51		0.07
				0.49						0.13	
28 22.0	F.	11.52	11.55		0.30	12 16.8	Ha.	4.62	4.76		0.14
				0.10						0.15	
30 12.9	Ha.	11.59	11.45		0.21	17 5.1	E.	5.70	5.57		0.13
										0.10	
30 14.9	S.	11.40	11.38		0.21	19 13.9	F.	5.74	5.71		0.20
										0.30	
30 0.2	Ha.	11.40	11.26		0.21	20 17.3	Ha.	5.91	6.05		0.36
				0.33						0.41	
31 12.0	E.	10.98	11.11		0.25	21 12.6	E.	6.51	6.38		0.30
										0.19	
31 13.3	F.	+ 10.86	+10.89		− 0.25	23 19.7	F.	− 6.85	− 6.82		− 0.19
				− 0.18						− 0.18	

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TABLE D.—*Adopted Corrections and Rates of the Kessels Sidereal Clock, &c.*—Continued.

Mean Day and Sidereal Hour.	Observer.	Clock Correction from Mean of Observations.	Clock Correction Corrected for Personal Equation.	Appar'nt Rate between Groups.	Adopted Daily Rate.	Mean Day and Sidereal Hour.	Observer.	Clock Correction from Mean of Observations.	Clock Correction Corrected for Personal Equation.	Appar'nt Rate between Groups.	Adopted Daily Rate.
d. h.		s.	s.	s.	s.	d. h.		s.	s.	s.	s.
July 23 20.6	Ha.	— 6.67	— 6.81		— 0.23	Sept. 16 16.1	S.	— 17.59	—17.61		— 0.14
				— 0.28						+ 0.08	
24 17.2	Ha.	6.91	7.05		0.22	17 12.6	S.	17.52	17.54		+ 0.05
				0.15						+ 0.02	
25 20.8	Ha.	7.08	7.22		0.18	18 22.6	F.	17.54	17.51		— 0.01
				0.22						— 0.04	
26 16.7	E.	7.44	7.33		0.16	19 21.4	F.	17.58	17.55		+ 0.11
										+ 0.26	
26 19.3	Ha.	7.36	7.50		0.16	20 10.9	S.	17.38	17.40		0.14
				0.10						0.02	
27 14.1	F.	7.50	7.47		0.30	21 19.7	S.	17.35	17.37		+ 0.02
										+ 0.02	
27 20.5	Ha.	7.42	7.56		0.30	24 12.8	S.	17.28	17.30		— 0.07
				0.51						— 0.17	
28 19.3	Ha.	7.82	7.96		0.42	28 19.6	E.	18.16	18.03		— 0.03
				0.33						+ 0.11	
29 18.9	Ha.	8.15	8.29		0.32	30 10.1	S.	17.72	17.74		+ 0.12
				— 0.30						+ 0.13	
30 13.7	E.	8.66	8.53		0.13	Oct. 1 12.0	E.	17.73	17.60		— 0.08
										— 0.29	
30 20.2	Ha.	8.46	8.60		0.13	3 14.2	F.	17.95	17.92		— 0.14
				+ 0.05						0.00	
31 18.8	F.	8.52	8.49		0.14	9 0.3	S.	17.87	17.89		+ 0.18
										+ 0.37	
31 20.4	Ha.	8.38	8.52		0.14	10 14.0	E.	17.81	17.68		+ 0.08
				— 0.33						— 0.21	
Aug. 2 22.0	Ha.	9.06	9.20		0.29	14 19.7	E.	18.72	18.59		— 0.28
				0.25						0.35	
3 12.9	E.	9.45	9.32		0.15	16 22.3	S.	19.31	19.33		0.29
3 17.3	F.	9.47	9.44		— 0.15	16 10.1	S.	19.44	19.46		0.29
				— 0.05						0.23	
6 18.9	Ha.	9.40	9.54		+ 0.04	18 11.8	S.	19.92	19.94		0.27
				+ 0.13						0.30	
7 11.7	E.	9.58	9.45		0.00	21 19.6	S.	20.63	20.65		— 0.17
				— 0.13						— 0.03	
9 20.2	Ha.	9.61	9.75		— 0.07	25 10.2	S.	20.75	20.77		+ 0.02
				0.10						+ 0.08	
11 13.8	E.	10.04	9.93		0.14	26 9.9	E.	20.82	20.69		0.13
				0.17						0.18	
13 7.8	E.	10.52	10.39		0.19	29 20.9	S.	20.22	20.24		0.18
				0.21						+ 0.17	
17 18.9	Ha.	10.96	11.10		0.18	31 23.7	F.	19.92	19.89		+ 0.01
				0.16						— 0.15	
19 10.2	E.	11.49	11.36		0.18	Nov. 1 19.1	S.	19.99	20.01		— 0.08
				0.21						0.00	
21 19.5	Ha.	11.73	11.87		0.28	4 19.1	F.	20.03	20.00		— 0.01
				0.35						— 0.02	
23 19.2	S.	12.54	12.56		0.29	7 21.1	E.	20.18	20.05		+ 0.03
				— 0.23						+ 0.07	
25 4.2	Ha.	12.96	13.10		0.05	8 22.7	F.	20.00	19.97		+ 0.04
				+ 0.13						+ 0.01	
26 18.9	S.	13.00	13.02		0.03	12 23.8	F.	19.97	19.94		— 0.03
				— 0.19						— 0.07	
30 21.7	S.	13.77	13.79		0.25	15 21.4	E.	20.28	20.15		0.31
				0.32						0.55	
Sept. 3 20.9	S.	15.04	15.06		0.28	16 4.1	F.	20.88	20.85		0.42
				0.23						0.28	
6 12.8	S.	15.64	15.66		0.20	18 9.1	S.	21.54	21.56		0.26
				0.16							
14 21.0	F.	— 16.99	—16.96		— 0.26	18 15.2	E.	— 21.59	—21.46		— 0.26
				— 0.36						— 0.25	

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TABLE D.—*Adopted Corrections and Rates of the Kessels Sidereal Clock, &c.*—Continued.

Mean Day and Sidereal Hour.	Observer.	Clock Correction from Mean of Observations.	Clock Correction Corrected for Personal Equation.	Appar'nt Rate between Groups.	Adopted Daily Rate.	Mean Day and Sidereal Hour.	Observer.	Clock Correction from Mean of Observations.	Clock Correction Corrected for Personal Equation.	Appar'nt Rate between Groups.	Adopted Daily Rate.
d. h.		s.	s.	s.	s.	d. h.		s.	s.	s.	s.
Nov. 20 3.7	F.	− 22.00	−21.97		− 0.37	Dec. 9 1.7	E.	− 27.95	−27.82		− 0.08
				− 0.50						− 0.07	
23 23.2	E.	23.52	23.39		0.41	10 0.0	F.	27.93	27.90		0.14
				0.32						0.20	
24 12.0	F.	23.90	23.87		− 0.22	12 4.4	S.	28.32	28.34		0.33
				− 0.13						0.46	
26 4.9	S.	24.08	24.10		+ 0.08	13 0.1	E.	28.85	28.72		0.48
				+ 0.28						0.50	
27 19.5	E.	24.06	23.93		− 0.01	14 19.7	F.	29.16	29.13		0.32
				− 0.31						0.13	
28 2.7	F.	24.36	24.33		0.48	22 4.3	F.	30.29	30.26		0.32
				0.66						0.50	
Dec. 2 2.8	F.	27.01	26.98		0.38	23 4.3	E.	30.89	30.76		0.52
				0.09						− 0.54	
4 22.9	S.	27.22	27.14		0.11	24 4.8	S.	− 31.19	−31.21		− 0.54
				0.13							
5 3.3	E.	27.42	27.29		0.23						
				0.34							
6 20.8	F.	27.51	27.48		0.21						
6 22.7	S.	− 27.60	−27.62		− 0.21						
				− 0.08							

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TABLE E.—*Observations of the Nadir-Point, together with the Resulting Zenith-Point Corrections of the Transit Circle, in the Year* 1872.

Mean Day and Sidereal Hour.			Observer.	Readings of Microscope Micrometers.				Telescope Micrometer.	Circle Reading.	Zenith-Point Correction.
				V.	VI.	VII.	VIII.			
1872.	d.	h.		r. "	"	"	"	r.	° ′ ″	° ′ ″
Jan.	5	22.2	F.	10 0.9	29.4	28.7	0.6	36.720	179 55 59.90	0 0 47.53
	5	7.2	F.	1.7	0.5	0.1	29.9	36.655	56 0.55	47.88
	9	21.0	F.	5.3	2.1	3.9	4.9	36.207	4.05	51.28
	9	4.0	F.	2.0	29.5	29.8	1.5	36.425	0.70	51.28
	10	3.0	S.	1.5	2.7	0.8	1.4	36.395	1.60	50.83
	12	20.0	E.	10.2	7.9	8.6	8.5	35.980	8.80	50.02
	12	5.0	E.	11.2	9.5	10.5	8.6	35.803	9.95	51.58
	16	2.2	E.	7.3	5.0	6.2	5.6	35.955	6.02	53.19
	17	6.0	F.	11.4	7.7	8.8	9.2	35.708	56 9.28	53.71
	18	20.9	S.	0.1	26.6	27.5	29.2	36.436	55 58.35	53.46
	20	20.4	E.	7.7	6.2	5.4	7.9	35.672	56 6.80	56.75
	21	6.3	F.	7.0	3.4	3.8	4.1	36.080	4.58	52.71
	22	19.5	S.	3.5	0.7	0.9	2.0	36.308	1.78	52.00
	22	5.5	S.	17.4	14.6	15.2	15.9	35.298	15.78	53.52
	22	17.2	S.	14.2	11.2	12.0	12.2	35.538	56 12.40	53.21
	24	8.3	E.	10 1.0	28.2	29.9	29.8	36.330	55 59.72	53.72
	25	20.8	F.	9 29.8	25.4	25.0	29.1	36.493	57.32	53.61
	25	8.8	F.	10 1.9	27.2	28.1	0.4	36.283	55 59.40	54.76
	26	19.5	S.	9.5	9.0	7.0	10.4	35.725	56 8.98	53.75
	26	12.0	S.	11.2	7.5	9.0	9.5	35.677	9.30	54.17
	29	23.3	F.	9.6	5.0	6.6	6.5	35.838	6.92	54.07
	30	2.2	S.	12.9	9.0	11.2	11.4	35.549	56 11.12	54.32
	31	11.4	Ha.	0.0	25.5	27.7	27.8	36.360	55 57.75	55.23
Feb.	1	21.2	E.	3.1	0.5	1.5	2.5	36.152	56 1.90	54.28
	1	16.0	E.	8.4	3.4	4.6	5.0	35.854	5.35	55.40
	2	12.5	F.	7.5	3.6	5.0	9.7	35.807	6.45	55.02
	5	20.5	E.	7.3	2.4	5.6	8.2	35.950	5.88	53.41
	5	6.4	E.	7.7	1.0	5.6	7.3	36.011	5.40	52.95
	7	0.2	S.	6.7	4.0	5.4	6.4	35.902	5.62	54.40
	7	5.0	S.	10 4.4	0.0	1.4	2.2	36.055	56 2.00	55.67
	14	22.8	F.	9 23.4	19.7	20.7	23.8	36.720	55 51.90	55.54
	14	8.5	F.	10 0.9	26.1	29.0	29.6	36.292	55 58.90	55.12
	15	5.8	S.	28.6	24.5	20.1	21.5	34.627	56 23.68	55.93
	16	6.2	Ha.	10 14.3	9.2	5.2	6.7	35.673	8.85	54.68
	19	5.5	S.	11 4.0	28.8	24.5	26.2	34.431	28.38	54.25
	19	9.5	S.	10 27.5	22.8	17.0	18.6	34.831	21.48	54.96
	20	8.0	Ha.	11.2	5.8	1.0	3.0	35.970	5.25	53.73
	21	8.3	E.	13.0	7.7	3.4	4.8	35.899	7.22	52.85
	22	0.8	F.	6.5	3.9	26.5	2.5	36.125	56 2.35	54.24
	22	9.3	F.	10 4.9	0.7	23.6	27.9	36.324	179 55 59.28	0 0 54.25

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TABLE E.—*Observations of the Nadir-Point, &c.*—Continued.

Mean Day and Sidereal Hour.			Observer.	Readings of Microscope Micrometers.				Telescope Micrometer.	Circle Reading.	Zenith-Point Correction.
				V.	VI.	VII.	VIII.			
1872.	d.	h.		r. ″	″	″	″	r.	° ′ ″	° ′ ″
Feb.	23	8.5	S.	10 20.0	15.5	9.6	9.4	35.353	179 56 13.62	0 0 54.84
	25	12.5	E.	18.2	14.3	7.4	8.6	35.487	12.12	54.27
	26	22.8	F.	6.0	4.4	27.5	0.6	36.200	2.12	53.32
	26	10.4	F.	11.5	6.8	29.6	3.1	35.953	5.25	53.99
	27	1.5	S.	18.4	15.9	10.6	12.2	35.433	14.28	52.95
	27	6.8	S.	20.0	15.3	9.9	10.6	35.486	13.95	52.46
	27	14.5	S.	19.5	14.5	8.7	10.8	35.425	13.38	53.98
Mar.	1	0.8	F.	10.4	7.3	1.4	0.9	35.926	5.00	54.66
	5	1.0	F.	9.4	4.9	26.8	29.7	36.026	56 2.70	55.42
	5	9.0	F.	2.8	28.6	27.0	24.2	36.352	55 58.15	54.95
	6	8.5	S.	21.9	17.9	13.5	13.2	35.095	56 16.62	55.81
	12	8.8	E.	13.5	8.2	4.2	3.6	35.706	7.38	55.64
	16	23.2	E.	13.4	12.3	7.0	5.6	35.563	9.58	55.65
	16	8.2	E.	23.6	18.5	14.8	15.1	35.096	18.00	54.41
	18	8.0	S.	22.4	18.0	12.3	13.3	35.189	16.50	54.48
	19	10.1	Ha.	11.0	6.2	29.1	3.0	35.974	4.82	54.10
	20	9.2	F.	21.9	18.8	11.5	11.8	35.176	16.00	55.18
	21	0.4	E.	16.6	12.2	7.7	9.4	35.395	11.48	56.33
	21	9.0	E.	13.9	9.3	4.3	6.0	35.674	8.38	55.14
	24	10.0	E.	18.8	13.6	8.8	11.8	35.476	13.25	53.31
	27	9.7	Ha.	5.6	6.6	7.4	6.6	35.653	6.55	57.29
	28	0.3	E.	5.2	8.6	9.6	9.8	35.462	8.30	58.48
	28	8.9	E.	2.0	2.5	3.9	2.4	35.946	56 2.70	56.65
	29	8.2	F.	10 0.5	28.0	0.7	27.9	36.282	55 59.28	54.90
	31		Ha.	9 29.6	1.4	29.6	0.1	36.060	56 0.18	57.41
April	1	12.7	F.	10 2.2	2.2	2.0	3.0	35.854	2.35	58.40
	2	1.5	E.	4.6	6.0	8.0	7.0	35.604	6.40	58.19
	2	8.2	E.	3.0	3.3	4.1	2.5	35.981	3.22	55.59
	4	5.6	Ha.	2.5	3.0	3.2	2.4	35.973	2.78	56.15
	4	15.3	Ha.	1.6	2.5	0.4	1.6	35.909	1.52	58.40
	5	1.9	E.	0.7	2.0	4.0	3.2	35.876	2.48	57.93
	5	12.5	E.	11.8	12.0	13.9	11.9	35.316	12.40	56.42
	10	1.0	F.	3.5	4.0	4.9	3.6	35.862	4.00	56.63
	10	12.8	F.	4.0	5.2	2.8	3.2	35.884	3.80	56.48
	11	13.5	S.	15.4	18.9	16.3	14.5	35.176	16.28	54.90
	13	12.0	E.	12.1	15.7	11.9	10.8	35.418	12.62	54.84
	14	7.0	F.	5.7	8.6	4.2	5.1	35.834	5.90	55.16
	16	12.0	S.	7.0	8.4	3.0	2.8	35.630	5.30	58.90
	17	1.5	E.	6.2	9.1	4.6	4.3	35.583	6.05	58.87
	17	11.0	E.	10 8.2	8.0	4.6	5.5	35.586	179 56 6.58	0 0 58.29

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TABLE E.—*Observations of the Nadir-Point, &c.*—Continued.

Mean Day and Sidereal Hour.			Observer.	Readings of Microscope Micrometers.				Telescope Micrometer.	Circle Reading.	Zenith-Point Correction.
				V.	VI.	VII.	VIII.			
1872.	d.	h.		r. "	"	"	"	r.	° ′ ″	° ′ ″
April	19	13.8	Ha.	10 4.0	3.8	1.2	5.0	35.825	179 56 3.50	0 0 57.70
	20	12.4	S.	5.6	4.8	2.7	6.9	35.736	5.00	57.56
	21	12.3	E.	10.0	8.9	7.0	10.8	35.531	9.17	56.55
	22	2.3	F.	10 3.2	1.6	29.2	6.0	35.882	56 2.55	57.77
	22	14.0	F.	9 29.0	28.9	27.0	0.8	35.993	55 58.92	59.71
	23	13.8	Ha.	10 2.6	2.3	1.2	4.2	35.770	56 2.58	59.46
	24	14.0	S.	3.8	3.2	0.8	5.6	35.807	3.22	58.15
	25	3.0	E.	4.3	4.5	4.2	6.5	36.274	4.88	49.42
	25	13.7	E.	13.2	11.5	8.9	11.0	35.819	11.15	50.14
	29	11.7	E.	10.2	9.1	6.7	9.9	35.832	8.98	52.11
	29	20.7	E.	5.3	4.4	1.7	7.1	36.056	56 4.62	53.05
	30	2.5	F.	0.6	0.2	26.5	1.5	36.495	55 59.70	51.20
	30	13.7	F.	8.0	6.0	2.5	7.3	36.031	56 5.95	52.09
May	2	3.8	S.	3.7	3.4	29.8	5.4	35.962	3.08	56.03
	2	14.3	S.	4.6	4.0	0.7	6.0	35.889	3.82	56.39
	3	2.3	E.	12.8	12.5	9.7	13.2	35.432	12.05	55.19
	4	3.7	F.	7.8	6.4	3.8	9.2	35.697	6.80	56.36
	4	14.0	F.	4.5	1.8	28.6	5.5	35.867	2.60	57.95
	6	13.7	S.	4.4	3.4	29.1	1.3	36.262	2.05	53.64
	7	3.5	E.	12.1	11.7	8.7	11.5	35.652	11.00	52.86
	7	12.7	E.	16.5	14.2	11.9	13.5	35.516	14.02	51.93
	8	3.7	F.	1.6	28.4	24.6	0.8	36.517	28.85	51.71
	8	14.2	F.	11.0	8.1	2.5	6.2	36.001	56 6.95	51.55
	9	15.7	Ha.	2.8	2.0	25.3	28.5	36.411	55 59.65	52.55
	10	14.0	S.	3.6	2.1	26.7	0.1	36.335	56 0.62	52.74
	11	2.6	E.	15.4	15.1	10.7	13.5	35.541	13.68	51.88
	13	1.0	F.	10 7.6	4.3	29.3	4.3	36.049	56 3.88	53.88
	14	4.0	S.	9 29.3	28.4	21.6	29.5	36.483	55 57.20	53.89
	14	16.3	S.	10 2.0	0.2	26.2	0.0	36.273	55 59.60	54.72
	16	15.	S.	3.7	0.4	25.9	0.2	36.384	56 0.05	52.56
	19	12.0	E.	10 4.9	3.0	1.5	2.2	36.117	56 2.90	53.79
	20	6.0	F.	9 29.5	28.4	21.2	1.0	36.529	55 57.52	52.86
	20	14.0	F.	10 4.7	1.6	27.4	2.4	36.253	56 1.52	53.11
	21	16.3	Ha.	0.5	28.8	25.1	27.0	36.529	55 57.85	52.53
	23	6.3	S.	10 0.0	29.3	24.4	29.9	36.549	58.40	51.67
	23	16.5	S.	9 25.8	23.6	19.8	23.8	36.684	53.25	54.74
	26	21.0	S.	9 25.2	19.0	24.8	27.6	36.481	55 54.15	56.97
	27	14.0	E.	10 3.9	1.5	27.2	1.8	36.150	56 1.10	55.11
	27	22.4	E.	10 11.7	9.8	4.3	9.5	35.594	56 8.82	55.93
	28	5.0	F.	9 29.8	27.5	25.0	30.0	36.342	179 55 58.08	0 0 55.17

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TABLE E.—*Observations of the Nadir-Point, &c.*—Continued

Mean Day and Sidereal Hour.			Observer.	Readings of Microscope Micrometers. V.	VI.	VII.	VIII.	Telescope Micrometer.	Circle Reading.	Zenith-Point Correction.
1872. d.	h.			r. ″	″	″	″	r.	° ′ ″	° ′ ″
May 28		F.		10 4.8	1.9	27.7	2.9	35.964	179 56 1.82	0 0 57.25
30	17.5	S.		9 24.8	22.8	16.6	23.0	36.724	55 51.80	55.58
30	1.3	Ha.		10 4.8	3.2	28.0	2.0	36.012	56 2.00	56.33
31	4.3	E.		4.6	4.9	1.9	4.8	36.007	4.05	54.36
31	14.5	E.		12.9	11.2	7.4	10.3	35.633	10.45	53.70
31	1.5	E.		12.2	10.0	7.9	9.5	35.615	9.90	54.53
June 1	5.3	F.		6.5	1.6	6.4	10.3	35.871	6.20	54.29
4	13.7	E.		2.0	27.6	1.1	4.2	36.096	1.22	55.82
6	16.0	Ha.		8.6	5.9	3.1	6.1	35.929	5.92	53.69
8	14.0	E.		12.8	10.2	6.8	10.0	35.790	9.95	51.78
10	16.2	Ha.		6.8	5.6	0.4	3.4	35.977	4.05	54.82
11	8.	S.		3.0	0.9	26.9	1.6	36.257	0.60	53.96
12	6.0	E.		9.5	7.5	5.2	8.6	35.844	7.70	53.20
12	13.0	E.		16.1	13.2	10.8	13.0	35.472	13.28	53.35
13	5.8	F.		11.5	8.6	6.3	8.4	35.819	8.70	52.59
13	17.0	F.		8.0	5.0	29.8	4.3	36.050	4.28	53.47
17	17.5	F.		4.0	1.0	25.4	1.6	36.156	0.50	55.62
18	19.1	Ha.		10 8.4	5.8	0.1	3.0	35.880	56 4.32	56.03
19	14.5	S.		9 29.6	26.3	21.3	24.6	36.548	55 55.45	54.64
21	7.0	F.		10 12.5	8.8	3.6	8.3	35.781	56 8.30	53.57
26	15.2	Ha.		8.0	6.2	28.0	2.2	36.061	3.60	53.98
27	10.3	S.		16.5	14.8	8.0	13.8	35.484	13.28	53.16
28	6.9	E.		14.8	13.5	7.7	10.3	35.606	11.58	52.98
28	16.0	E.		15.6	14.3	7.3	11.2	35.503	12.10	54.05
29	16.5	F.		9.4	6.7	29.5	3.8	36.104	4.85	52.07
30	4.0	S.		13.9	10.9	3.7	8.7	35.781	9.30	52.57
July 1	17.7	S.		17.2	16.6	8.4	12.4	35.587	13.65	51.21
2	7.0	E.		16.8	16.5	8.7	13.8	35.617	13.95	50.44
2	17.0	E.		19.1	18.9	10.1	14.1	35.492	15.55	50.77
3	7.3	F.		5.6	3.9	27.1	1.7	36.371	2.08	50.73
4	5.3	S.		20.0	18.3	9.9	15.4	35.356	15.90	52.51
5	14.5	S.		21.0	19.9	11.4	15.9	35.393	17.05	50.79
5	2.3	S.		11.7	10.5	3.0	7.1	35.752	8.08	54.24
6	6.8	E.		14.4	13.0	4.2	9.6	35.742	10.30	52.17
6	16.8	E.		18.8	17.9	9.2	13.6	35.440	14.88	52.24
8	19.2	Ha.		11.4	9.9	2.2	6.8	35.837	7.57	53.44
9	5.7	S.		13.0	12.8	4.7	10.3	35.689	10.20	53.09
10	15.9	E.		16.8	14.5	5.9	12.0	35.638	12.30	51.77
12	16.8	Ha.		9.3	8.0	29.1	5.0	35.935	5.35	54.17
18	7.8	E.		10 16.8	15.5	6.5	11.0	35.637	179 56 12.45	0 0 51.64

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TABLE E.—*Observations of the Nadir-Point, &c.*—Continued.

Mean Day and Sidereal Hour.			Observer.	Readings of Microscope Micrometers.				Telescope Micrometer.	Circle Reading.	Zenith-Point Correction.
				V.	VI.	VII.	VIII.			
1872.	d.	h.		r. ″	″	″	″	r.	° ′ ″	° ′ ″
July	19	8.5	F.	10 5.6	2.5	22.9	0.1	36.439	179 56 0.28	0 0 51.48
	19	17.5	F.	7.2	3.9	24.0	0.2	36.308	1.32	52.46
	20	20.0	Ha.	11.6	9.8	0.0	5.5	35.938	6.72	52.75
	22	8.5	E.	12.8	10.8	2.1	7.9	35.886	8.40	51.85
	22	20.1	E.	14.4	12.4	4.3	7.8	35.808	56 9.72	51.74
	23	22.0	F.	4.5	0.5	22.6	28.7	36.402	55 59.08	53.25
	26	17.6	E.	16.2	14.0	6.3	10.3	35.823	56 11.70	49.53
	27	11.3	F.	3.0	1.4	21.7	27.9	36.610	55 58.50	50.63
	27	20.7	F.	4.8	1.6	21.5	27.2	36.643	55 58.78	49.85
	30	8.2	E.	14.0	12.0	3.6	8.1	35.866	56 9.42	51.14
	30	17.9	E.	12.0	9.3	0.8	7.5	36.055	56 7.40	50.27
	31	17.8	F.	3.2	29.9	20.7	29.3	36.631	55 58.28	50.83
Aug.	3	9.2	E.	16.1	13.8	4.4	10.6	35.739	56 11.22	51.30
	3	18.0	E.	17.0	14.3	5.5	9.0	35.732	11.45	51.18
	7	9.8	E.	12.5	11.0	1.4	9.7	35.956	8.65	50.55
	7	18.0	E.	7.8	5.0	26.4	1.0	36.278	2.55	51.69
	11	14.0	E.	15.3	12.5	4.1	11.1	35.818	10.75	50.55
	14	9.9	E.	10.8	9.0	27.4	4.7	36.164	5.48	50.51
	17	20.3	Ha.	9.1	6.4	25.7	0.4	36.206	2.90	52.45
	19	10.3	E.	16.3	14.2	2.7	10.1	35.781	10.82	51.05
	21	21.2	Ha.	12.7	10.5	28.0	2.8	36.022	6.00	52.18
	23	20.0	S.	19.4	15.3	4.2	9.5	35.689	12.10	51.19
	25	5.3	Ha.	9.0	6.2	24.4	1.3	36.186	2.72	52.94
	26	21.2	S.	17.4	13.8	2.2	7.7	35.793	10.28	51.41
	30	20.6	S.	16.0	13.0	1.6	7.7	35.638	9.58	54.49
Sept.	3	21.4	S.	12.2	9.2	27.9	2.3	36.045	5.40	52.42
	6	22.0	S.	13.2	. .	29.4	. .	35.992	56 6.30	52.34
	14	22.5	F.	6.2	3.0	21.3	29.0	35.952	55 59.88	59.37
	15	11.0	S.	7.2	3.3	22.0	28.8	36.070	56 0.32	57.12
	16	22.0	S.	8.9	6.0	26.0	0.8	36.035	56 2.92	55.06
	18	19.7	F.	10 5.9	0.2	20.2	27.8	36.289	55 58.52	55.55
	18	2.5	F.	9 26.4	22.0	9.8	17.5	36.875	48.92	56.14
	19	21.8	F.	10 3.3	29.3	17.8	25.8	36.410	55 56.55	55.66
	20	11.5	S.	28.0	20.8	2.5	5.8	35.257	56 14.27	55.66
	21	19.5	S.	25.8	20.9	11.2	15.6	35.037	18.38	54 94
	24	10.8	S.	23.1	15.8	2.4	8.8	35.580	12.52	52.44
	24	21.0	S.	24.7	20.6	8.0	13.2	35.221	16.62	53.87
	28	20.8	E.	8.6	4.8	24.0	29.7	35.957	1.78	57.40
Oct.	1	13.8	S.	21.2	17.0	4.5	12.6	35.228	13.82	56.56
	2	13.0	E.	10 11.4	8.3	26.7	3.6	35.710	179 56 5.00	0 0 57.96

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TABLE E.—*Observations of the Nadir-Point, &c.*—Continued.

Mean Day and Sidereal Hour.			Observer.	Readings of Microscope Micrometers.				Telescope Micrometer.	Circle Reading.	Zenith-Point Correction.
				V.	VI.	VII.	VIII.			
1872.	d.	h.		r. ″	″	″	″	r.	° ′ ″	° ′ ″
Oct.	9	21.0	S.	10 17.2	12.2	10.2	6.4	35.452	179 56 11.50	0 0 55.44
	10	13.5	E.	11.1	8.8	6.0	2.1	35.802	7.00	54.55
	15	11.0	S.	15.8	10.8	9.8	6.5	35.507	10.72	55.37
	16	3.7	S.	19.1	13.2	11.4	6.8	35.395	12.62	55.19
	16	11.8	S.	16.5	11.2	9.1	6.2	35.527	10.75	55.03
	20	11.7	S.	16.9	9.8	8.2	4.4	35.581	9.82	55.13
	21	22.3	S.	10 12.0	. .	5.4	. .	35.836	56 8.70	52.32
	26	10.2	E.	9 24.1	22.7	19.0	12.8	36.864	55 49.65	55.68
	29	0.0	S.	10 12.8	10.2	7.0	2.2	35.430	56 8.05	59.22
	31	0.3	F.	8.0	4.1	2.4	27.5	35.756	3.00	59.25
Nov.	1	23.6	S.	17.4	14.5	12.5	6.8	35.187	56 12.80	58.21
	4	15.0	F.	1.8	27.6	24.9	23.4	36.225	55 56.92	58.14
	4	0.7	F.	6.4	2.1	0.6	26.4	35.923	56 1.38	58.32
	7	15.3	E.	6.5	5.2	3.3	28.6	35.902	3.40	56.62
	7	0.5	E.	11.5	8.0	6.8	0.6	35.698	6.73	56.42
	8	15.8	F.	6.6	2.5	2.0	27.2	35.937	56 2.08	57.41
	8	0.3	F.	3.6	0.2	26.9	22.7	36.110	55 58.35	58.47
	12	0.7	F.	6.2	2.6	29.3	25.0	35.962	56 0.78	58.32
	15	15.6	E.	1.8	28.6	27.0	26.3	36.211	55 58.42	56.85
	15	23.7	E.	8.4	6.0	4.3	27.6	35.790	56 4.08	57.65
	16	5.8	F.	2.4	29.6	27.3	22.4	36.076	55 57.92	59.43
	18	9.0	S.	7.8	4.0	2.4	27.0	35.778	56 2.80	59.12
	19	16.3	E.	1.5	28.0	27.0	21.8	36.088	55 57.08	60.08
	20	22.7	F.	5.2	1.2	29.3	24.5	35.944	56 0.05	59.33
	20	10.6	F.	5.5	1.2	29.3	24.7	35.921	0.18	59.55
	23	16.1	E.	9.9	8.7	5.8	28.2	35.626	5.65	58.60
	23	0.3	E.	10.2	7.1	4.7	28.7	35.619	5.18	59.20
	23	12.2	E.	11.1	9.3	6.4	0.2	35.526	6.75	59.04
	24	12.2	F.	7.8	4.8	2.1	28.5	35.751	3.30	59.03
	27	16.4	E.	12.4	12.6	11.8	2.3	34.981	9.78	64.40
	27	1.1	E.	11.2	7.9	6.0	29.2	35.502	6.08	60.08
	28	1.8	F.	10.2	6.7	3.2	29.4	35.556	4.88	60.45
Dec.	2	19.0	F.	6.8	0.6	0.5	26.5	35.896	1.10	59.02
	2	3.4	F.	9.4	4.7	3.8	28.0	35.739	3.98	58.54
	4	17.0	S.	9.0	7.1	1.9	28.2	35.639	4.05	60.01
	4	4.0	S.	11.0	8.5	5.3	29.3	35.562	6.02	59.22
	5	2.0	E.	7.7	4.1	2.2	25.5	35.624	2.38	61.91
	6	18.0	F.	7.2	6.1	4.8	0.3	36.010	4.60	53.76
	6	23.6	S.	13.1	8.7	7.4	0.6	35.416	56 7.45	60.04
	6	4.0	F.	10 5.8	1.6	28.1	24.4	35.824	179 55 59.98	0 0 61.23

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TABLE E.—*Observations of the Nadir-Point, &c.*—Continued.

Mean Day and Sidereal Hour.			Observer.	Readings of Microscope Micrometers.				Telescope Micrometer.	Circle Reading.	Zenith-Point Correction.
				V.	VI.	VII.	VIII.			
1872.	d.	h.		r. ″	″	″	″	r.	° ′ ″	° ′ ″
Dec.	7	23.2	S.	10 15.8	11.9	9.1	3.0	35.189	179 56 9.95	0 0 61.03
	9	3.3	E.	8.1	5.7	2.2	25.2	35.624	56 2.80	61.49
	10	18.0	F.	4.2	0.0	26.6	23.5	35.923	55 58.58	61.10
	10	6.5	F.	8.2	4.9	2.6	27.4	35.559	56 3.28	62.01
	12	5.8	S.	14.7	10.7	8.8	2.4	35.173	9.15	62.08
	13	20.0	E.	4.0	2.9	0.0	23.5	35.916	0.10	59.71
	13	4.6	E.	7.6	4.4	2.6	25.6	35.628	2.55	61.68
	14	18.0	F.	7.4	3.8	0.8	27.6	35.778	56 2.40	59.52
	22	17.8	F.	0.0	27.1	23.9	18.6	36.036	55 54.90	63.06
	23	5.5	E.	5.9	2.5	1.5	23.6	35.770	56 0.88	61.16
	24	5.0	S.	10 4.6	0.5	27.7	23.0	35.794	179 55 58.95	0 0 62.72

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THE MURAL CIRCLE.

During the year 1872, the Mural Circle was employed in observing stars whose right ascensions had been previously determined by the Transit Instrument, a number of stars above and below the pole from the British Association Catalogue, and a few observations of the moon.

MICROMETER AND TRANSIT THREADS.

The diaphragm inserted in February, 1871, was in use during the year. The intervals of the threads were as follows:

Thread .	I.	II.	III.	IV.	1.	2.	V.	4.	5.	VI.	VII.	VIII.	IX.
Interval .	″ +53.3	″ +40.9	″ +29.0	″ +16.0	″ +3.2	″ +1.6	″ 0.0	″ −1.7	″ −3.3	″ −16.1	″ −28.5	″ −40.5	″ −52.7

The value of the micrometer-screw was determined from the following observations:

1872.	r.	r.	r.
April 17,	21.029	30.622	40.208
April 24,	20.992	30.587	40.163

From which we have a value of 31″.290, which was used up to April 25; and after this, the focus being changed, a value of 31″.314, found from the following observations:

1872.	r.	r.	r.
April 29,	20.858	30.440	40.023
May 28,	20.809	30.382	39.958
June 18,	20.762	30.347	39.930

THE NADIR POINT.

For determinations of the nadir-point, a cap is provided, which fits loosely over any of the eye-pieces of the telescope. Just above the eye-lens, the cap has a plate of thin glass, inclined at an angle of 45°. This arrangement has the advantage of enabling the observer to collimate without removing the eye-piece used in observation, and thereby avoids the risk of injury to the threads, and prevents the frequent admission of dust by air-currents, &c.

The mode of observation is as follows: The circle-telescope is so pointed that when the nadir-divisions of the former are accurately under the zeros of the microscopes, the images of the horizontal threads in the field of the latter may be seen at a

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small distance from the threads themselves. The micrometer-reading for the true nadir being that which corresponds to the coincidence of each thread seen directly, with the image of the other seen by reflection, the images were alternately made to measure, on each side of the threads, spaces equal to their distance apart.

As the nadir thus determined always depends upon the same set of divisions of the circle, and is made with the same part of the micrometer-screw, it is uniformly affected with the errors of those divisions and by any inaccuracy peculiar to that portion of the screw.

METHOD OF OBSERVING.

The method of observing was the same as in previous years, and consisted essentially in transferring the subdivisions of the circle from the microscopes to the micrometer eye-piece. The circle was set so that the divisions nearest to the reading for the given declination were as accurately as possible under the zero of the microscopes.

The circle-microscopes were read either before or after the observation. The observations were made by bisecting the objects with the southern horizontal thread and occasionally the northern limb of the moon with the northern thread, and the observations of the nadir-point were reduced to the southern or northern wire from the observations of the night.

EXPLANATION OF THE PRINTED OBSERVATIONS.

Columns 1 to 3 and 7 to 12 need no explanation beyond that given in former years. The magnitudes in column 4 are those estimated by the observer at the time of observation.

Columns 5 and 6 show the number of micrometer-readings, generally three for each star, and the transit-threads over which the readings were made. When the number of micrometer-readings does not correspond to the number of threads included between the limits given in column 6, it is understood that the observations were made at equal intervals between those limits.

Column 13 contains the mean of the six microscope-readings.

Column 14 contains the mean of the observed micrometer-readings.

Column 15 contains the adopted "nadir-correction," expressed in micrometer-revolutions. It is formed by subtracting the excess of the micrometer-reading above 30 revolutions from the excess of the mean circle-reading above 200°, the reading of microscope A when the telescope pointed to the nadir; that excess being first expressed in micrometer-revolutions.

Column 16 gives the corrected meridian micrometer-reading formed by applying the following corrections to column 14:

1. The nadir-correction.

2. The reduction to the meridian. For observations made on any of the vertical wires, the reduction is given by the formula,

$$\Delta m = -\frac{\sin^2 \frac{1}{2} h}{2 r \sin 1''} \tan \delta$$

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h being the equatorial interval in arc of the vertical wire, and r the value of one revolution of the micrometer. Expressing h in seconds of time, and putting r for its value already given, this expression becomes

$$\Delta m = -[5.2405]\, h^2 \tan \delta$$

the value of which, for different wires, is tabulated on pages xxxii and xxxiii of the Introduction to the Washington Observations for 1863.

For stars near the pole, the time having been recorded, this expression becomes

$$\Delta m = -\frac{225 \sin 1''}{4r} (t-a)^2 \sin 2\delta$$

t being the true sidereal time of observation and a the right ascension of the star.

3. The correction of unsymmetrical observations of the moon, on account of motion in declination. This was computed by the formula,

$$\Delta m = [4.9467]\, h \sec \delta' \Delta \delta \left(1 + \frac{\Delta \alpha}{3610}\right)$$

$\Delta \alpha =$ change of R. A. in 1 hour of mean time.
$\Delta \delta =$ change of δ in 1 hour of mean time.
$h =$ sidereal equatorial interval of wire.
$\delta' =$ declination of limb.

4. The correction of unsymmetrical observations for inclination of the micrometer-threads to the horizon. This was:

Jan. 2 to July 12, - - - - - -	$i = +0^r.00004 \times h$
Aug. 8 to Sept. 1, - - - - - -	$i = +0^r.00009 \times h$
Sept. 3 to Sept. 20, - - - - - -	$i = +0^r.00048 \times h$
Sept. 21 to Oct. 12, - - - - - -	$i = +0^r.00021 \times h$
Oct. 15 to Nov. 6, - - - - - -	$i = +0^r.00015 \times h$
Nov. 7 to Nov. 26, - - - - - -	$i = +0^r.00011 \times h$
Nov. 27 to Dec. 13, - - - - - -	$i = -0^r.00002 \times h$

i denoting the correction for inclination and h the equatorial interval in seconds of time, used with its proper algebraic sign for any thread.

Columns 18, 19, and 20 contain the reading of the Newman barometer, its attached thermometer, and the external thermometer.

The external thermometer is designated No. 3 in the Appendix to the Washington Observations for 1845, page 54; it is placed outside of the north aperture, several inches beyond the wall, and is read by the help of a sextant-telescope attached to the window-frame.

Column 21, entitled "Instrumental corrections," contains the micrometer-equivalent, or the difference between the corrected micrometer-reading and 30 revolutions, converted into arc. If the former quantity is denoted by m, the values in this column will be given by the formula,

$$\text{Corr.} = (30 \text{ rev.} - m)\, r$$

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Column 22 contains the apparent zenith-distance, equal to the sum of columns 13 and 21, diminished by 20° if the sum be greater than 20°, or subtracted from 20° if less. In the former case the result is marked S., as south; in the latter N., as north.

Column 23 contains the correction for refraction corresponding to the apparent zenith-distance and the barometer and thermometer readings. This quantity is computed from Bessel's tables, as given in an expanded form in the Appendix to the Washington Observations for 1845. This correction, added to the apparent zenith-distance, gives the corrected geocentric zenith-distance, which is not printed.

The following corrections are applied to the thermometer-readings for irregularity in the bore of the tube:

1. The correction of the thermometer.

Correction of Thermometer.

Ther. scale.	Corr.	△ log ref.	Ther. scale.	Corr.	△ log ref.
°	°		°	°	
30	− 0.04	+0.00004	66	+ 0.20	−0.00016
32	− .06	+ 5	68	+ .25	− 21
34	− .11	+ 10	70	+ .22	− 18
36	− .08	+ 7	72	+ .12	− 10
38	− .05	+ 4	74	+ .03	− 3
40	− .02	+ 2	76	− .01	+ 1
42	− .01	+ 1	78	− .04	+ 3
44	.00	0	80	− .04	+ 3
46	− .01	+ 1	82	− .01	+ 1
48	− .03	+ 3	84	.00	0
50	− .04	+ 3	86	− .06	+ 5
52	− .03	+ 3	88	− .12	+ 10
54	− .01	+ 1	90	− .14	+ 11
56	− .01	+ 1	92	− .14	+ 11
58	− .03	+ 3	94	− .14	+ 11
60	.00	0	96	− .13	+ 11
62	+ .05	− 4	98	− .12	+ 10
64	+ 0.12	−0.00010	100	− 0.12	+0.00010

2. The correction for parallax for observation of the moon, computed by the formula,

$$\sin p' = \sin \pi \sin (z' - 11' 14''.54)\ [9.9994302]$$

or,

$$p' = \pi\ (z' - 11' 14''.54)\ [9.9994302]\ \frac{\sin \pi \operatorname{arc} p'}{\operatorname{arc} \pi \sin p'}$$

and

$$p = p' \mp \tfrac{1}{2}\ (p \mp s) \sin p \sin s$$

the upper sign corresponding to observations of the upper limb, and *vice versa*. The quantities

$$\frac{\sin \pi}{\operatorname{arc} \pi} \text{ and } \frac{\operatorname{arc} p}{\sin p}$$

are given in Tables IX and X, and the correction of p' in the last formula is given in Table XI of the Appendix to the Washington Observations for 1845.

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In the formulas

z' represents the observed zenith-distance, correct for refraction;

π, the equatorial horizontal parallax, as given in the American Ephemeris;

s, the semi-diameter of the object; and

p, the required correction for parallax.

3. In cases when only one limb of an object is observed, the correction for semi-diameter is included under this head. This correction is in all cases taken from the American Ephemeris.

4. A reduction on account of defective illumination of the moon.

Let α' and δ' represent the moon's right ascension and declination; A and D, the sun's right ascension and declination; S, the semi-diameter of the moon; then we have

$$\tan \varepsilon = \tan \delta' \cos (\alpha' - \mathrm{A})$$

$$\sin \chi = \frac{\sin (\mathrm{D} - \varepsilon) \cos \delta'}{\cos \varepsilon}$$

and

$$\Delta \mathrm{S} = \mathrm{S} \operatorname{ver} \sin \chi$$

A negative value of sin χ will indicate that a correction is to be applied to the north limb.

Column 24 contains the declination of the star, using the assumed north latitude $+38^\circ\ 53'\ 38''.8$.

Column 25 contains the reduction from the apparent declination at date to the mean declination for 1872.0.

It was computed by Bessel's formulas, with the constants of the American Ephemeris and Nautical Almanac; and, in addition to the terms included in that work, it includes also those depending on twice the moon's longitude.

Corrections for proper motion have not been applied to any star.

The resulting mean places of the stars are collected in pages 235 to 246, inclusive.

The declinations of the moon are given after observations of "Small Planets."

Column 26 contains the initial of the observer's name: Y. Professor M. Yarnall.

The observations were reduced by Professors Yarnall and Lockwood, and by Mr. A. N. Skinner, assistant observer.

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OBSERVATIONS

WITH THE

TRANSIT CIRCLE.

1872.

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SUMMARY OF THE PRINCIPAL CONSTANTS USED IN REDUCING OBSERVATIONS MADE WITH THE TRANSIT CIRCLE DURING THE YEAR 1872.

Approximate equatorial interval between any two consecutive wires from I to VII . . . . . $12\frac{1}{4}^s$

One revolution of the microscope micrometers . . . . . $30''$

The value of one revolution of the zenith distance micrometer varies in different parts of the screw. At 25 revolutions it is 15″.193, from whence it gradually increases to 15″.369 at 37 revolutions, and then again diminishes to 15″.314 at 45 revolutions. The exact value of each turn, from 25 to 45 revolutions, is given in the introduction.

Corrections for Inclination and Distances of the Declination Wires.

Vertical Wire.	Inclination of Central Wires.	Correction for Wire A.	Correction for Wire B.
	″	′ ″	′ ″
I	+ 0.08	− 2 35.12	. . .
II	+ 0.05	34.96	. . .
III	+ 0.03	34.79	. . .
IV	0.00	34.63	. . .
V	− 0.03	34.46	. . .
VI	− 0.05	34.30	. . .
VII	− 0.08	− 2 34.13	. . .

Constant { Added to reduction to meridian / Subtracted from zenith point correction } . . . . . ″ 1.80

Adopted latitude of the instrument . . . . . ° ′ ″ 38 53 38.80

One division of the hanging level . . . . . *s.* 0.058

Position of the instrument . . . . . Clamp west.

Circle B, on the east end of the axis, was this year used in observation, the reading of its horizontal microscope being 0° when the telescope was pointed to the zenith.

In reversing the instrument the notation of the transit wires is also reversed, so that the wire first reached by an equatorial star is always called wire I.

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Jan. 1	1	Venus II	S.	39.2	41.8	43.2	49.7	51.9	54.0	0.4	1.9	4.8	39 51.88	+ 0.30	. .	— 4.92	15 39 47.26	— 0.68
	2	α Scorpii	S.	22.0	25.0	26.9	33.4	35.9	38.3	44.8	46.6	49.5	21 35.82	+ 0.32	— 4.84	— 4.90	16 21 31.24	— 0.07
	3	ζ Ophiuchi	S.	56.7	59.2	0.7	7.0	9.1	11.2	17.4	18.9	21.5	30 9.08	+ 0.28	— 4.36	— 4.89	16 30 4.47	— 0.03
	4	η Herculis	S.	17.5	20.6	22.7	30.5	33.1	35.9	43.7	45.6	49.0	38 33.18	+ 0.14	— 4.96	— 4.89	16 38 28.43	+ 0.08
	5	α^1 Herculis	S.	38.5	41.3	42.7	49.1	51.3	53.4	59.7	1.2	3.8	8 51.22	+ 0.22	— 4.91	— 4.88	17 8 46.56	+ 0.05
	6	β Draconis	S.	14.6	19.0	21.4	31.5	34.8	38.5	48.2	50.7	54.9	27 34.84	+ 0.04	. .	— 4.87	17 27 30.01	+ 0.12
	7	α Ophiuchi	S.	. .	. .	57.7	0.0	2.0	4.1	6.3	. .	. .	29 2.02	+ 0.23	— 4.87	— 4.87	17 28 57.38	+ 0.03
	8	μ Herculis	S.	15.8	18.5	20.3	27.2	29.5	31.9	38.7	40.4	43.2	41 29.50	+ 0.19	— 4.96	— 4.86	17 41 24.83	+ 0.10
	9	γ Draconis	S.	20.6	24.8	27.2	37.0	40.4	43.6	53.5	56.0	0.1	53 40.36	+ 0.07	. .	— 4.86	17 53 35.57	— 0.04
	10	δ Ursæ Minoris	S.	. .	. .	. .	. .	. .	. .	47.0	. .	55.0	13 28.50	. .	. .	. .	. . . .	. .
2	11	Sun I	S.	29.2	31.6	33.6	40.1	42.3	44.7	51.3	52.9	55.8	49 42.39	+ 0.31	. .	— 4.84	18 49 37.86	. .
	12	Sun II	S.	51.2	54.0	56.0	2.4	4.6	7.0	13.9	15.7	18.2	52 4.78	+ 0.31	. .	— 4.84	18 52 0.25	. .
	13	ε Delphini	S.	. .	. .	6.0	8.2	10.3	12.4	16.6	18.0	20.7	27 8.19	+ 0.24	— 4.73	— 4.79	20 27 3.64	— 0.01
	14	α Cygni	S.	49.3	52.7	55.0	3.6	6.6	9.5	18.0	20.0	23.7	37 6.49	+ 0.11	. .	— 4.79	20 37 1.81	+ 0.10
	15	γ Cygni	S.	10.5	13.9	15.9	23.9	26.7	29.3	37.3	39.4	42.7	52 26.62	+ 0.13	— 4.89	— 4.78	20 52 21.97	+ 0.17
	16	ζ Cygni	S.	17.7	20.5	22.4	29.4	31.8	34.3	41.3	43.0	46.0	7 31.82	+ 0.18	— 4.78	— 4.78	21 7 27.22	+ 0 01
	17	α Cephei	S.	7.3	12.7	16.1	29.0	33.3	37.6	50.6	53.8	59.6	15 33.33	— 0.05	. .	— 4.77	21 15 28.51	— 0.04
	18	β Aquarii	S.	42.0	43.4	47.4	49.5	51.4	53.6	55.7	59.7	1.3	24 51.56	+ 0.27	— 4.70	— 4.77	21 24 47.06	— 0.04
	19	β Cephei	S.	25.5	33.2	37.7	55.6	1.7	7.5	25.6	30.1	37.5	27 1.60	— 0.20	. .	— 4.77	21 26 56.63	+ 0.09
	20	ε Pegasi	S.	44.0	46.7	48.1	54.5	56.5	58.6	4.7	6.3	8.9	37 56.48	+ 0.24	— 4.69	— 4.76	21 37 51.96	— 0.06
5	21	Sun I, N.	F.	40.3	42.9	44.5	51.3	53.5	55.6	2.4	4.2	6.8	2 53.50	+ 0.28	. .	— 2.97	19 2 50.81	. .
	22	Sun II, S.	F.	2.0	4.7	6.3	13.0	15.1	17.3	24.1	25.1	28.5	5 15.18	+ 0.28	. .	— 2.97	19 5 12.49	. .
	23	ζ Cygni	F.	15.9	18.7	20.6	27.7	30.0	32.4	39.4	41.1	44.0	7 29.98	+ 0.15	— 2.92	— 2.92	21 7 27.21	+ 0.01
	24	α Cephei	F.	5.3	10.9	14.0	27.0	31.4	35.9	48.9	52.2	57.7	15 31.48	— 0.07	. .	— 2.92	21 15 28.49	+ 0.01
	25	β Cephei	F.	31.3	35.6	47.8	53.9	59.6	5.7	11.7	23.7	28.2	26 59.72	— 0.23	. .	— 2.91	21 26 56.58	+ 0.16
	26	ε Pegasi	F.	42.4	44.9	46.5	52.8	54.8	56.8	3.0	4.5	7.0	37 54.74	+ 0.21	— 2.93	— 2.91	21 37 52.04	+ 0.03
	27	α Tauri	F.	24.4	27.0	28.7	35.1	37.4	39.4	45.8	47.4	50.1	28 37.26	+ 0.18	— 2.73	— 2.76	4 28 34.68	— 0.05
	28	Anonymous	F.	34.3	37.4	39.3	46.4	49.0	51.5	58.8	0.6	3.7	32 49.00	+ 0.11	. .	— 2.76	4 32 46.35	— 0.09
	29	ι Aurigæ	F.	27.9	31.0	32.7	40.0	42.4	44.9	52.0	54.0	57.0	48 42.43	+ 0.11	— 2.82	— 2.76	4 48 39.78	+ 0.02
	30	11 Orionis	F.	5.4	8.2	9.7	15.9	18.0	20.1	26.6	28.0	30.8	57 18.08	+ 0.18	— 2.76	— 2.75	4 57 15.51	— 0.06
	31	α Aurigæ	F.	59.7	3.6	5.5	14.3	17.1	20.2	28.7	31.0	34.7	7 17.20	+ 0.05	. .	— 2.75	5 7 14.50	— 0.03
	32	β Orionis	F.	16.2	17.6	21.9	23.9	26.0	28.0	30.1	34.4	35.9	8 26.00	+ 0.25	— 2.70	— 2.75	5 8 23.50	— 0.05
	33	β Tauri	F.	1.0	4.0	5.7	12.5	15.0	17.4	24.3	26.2	29.0	18 15.01	+ 0.13	— 2.85	— 2.75	5 18 12.39	+ 0.08
	34	δ Orionis	F.	18.7	21.3	22.8	28.9	31.0	33.0	39.1	40.8	43.2	25 30.98	+ 0.22	— 2.83	— 2.74	5 25 28.46	+ 0.06
	35	α Leporis	F.	55.2	57.9	59.4	6.0	8.2	10.3	16.9	18.4	21.0	27 8.14	+ 0.27	— 2.78	— 2.74	5 27 5.67	0.00
	36	ε Orionis	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	37	α Orionis	F.	5.0	7.8	9.1	15.4	17.4	19.5	25.7	27.0	29.7	48 17.47	+ 0.20	— 2.77	— 2.73	5 48 14.87	+ 0.01
	38	22 Camelopardalis	F.	. .	. .	37.3	43.0	49.0	54.8	0.7	. .	. .	4 48.96	— 0.25	. .	— 2.73	6 4 45.98	+ 0.20
	39	δ Ursæ Minoris, S.P.	F.	. .	. .	14.0	47.5	21.5	56.5	32.0	. .	. .	13 22.30	+ 4.56	. .	— 2.72	6 13 24.14	+ 3.08
	40	51 Cephei	F.	. .	. .	. .	. .	. .	. .	57.5	30.0	23.5	40 8 53	— 5.02	. .	— 2.72	6 40 0.78	— 1.68
	41	δ Geminorum	F.	18.1	20.7	22.4	29.1	31.3	33.4	40.1	41.8	44.4	12 31.26	+ 0.16	— 2.46	— 2.70	7 12 28.72	— 0.30
	42	α^2 Geminorum	F.	14.2	17.2	19.0	26.2	28.7	31.1	38.3	40.0	43.0	26 28.63	+ 0.12	— 2.58	— 2.70	7 26 26.05	+ 0.12
	43	α Canis Minoris, (R.)	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	44	β Geminorum	F.	17.7	20.7	22.5	29.5	31.8	34.2	41.0	42.7	45.8	37 31.77	+ 0.13	— 2.69	— 2.70	7 37 29.20	— 0.04
	45	φ Geminorum	F.	. .	37.8	40.0	42.5	44.9	47.2	51.8	53.5	56.4	45 42.53	+ 0.14	— 2.66	— 2.69	7 45 39.98	— 0.11
	46	Uranus I, N.	F.	6.5	9.2	11.2	. .	. .	. .	8.2	29.8	32.4	8 19.52	+ 0.16	. .	— 2.68	8 8 17.00	. .
	47	Uranus II, S.	F	. .	. .	15.6	17.7	19.8	22.0	54.2	. .	. .	8 19.86	+ 0.16	. .	— 2.68	8 8 17.34	. .
	48	Anonymous	F.	34.4	37.0	38.6	44.9	46.9	48.8	5.0	56.4	59.0	31 46.78	+ 0.23	. .	— 2.63	10 31 44.38	+ 0.15
	49	l Leonis	F.	21.4	24.0	25.7	31.8	33.8	35.9	42.2	43.8	46.4	42 33.89	+ 0.19	— 2.63	— 2.63	10 42 31.45	0.00

25. Bisection at set C.
31, 38. Bisections at sets B and D.
40. Bisections at sets D_1, D_2, D_3.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	
1																	
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20																	
21	298 42	10 3.8	2.5	6.2	4.5	36	776	766	. .	. .	. .	47.5	61 14 3.6	. .	+ 1 47.4	112 22 12.2	
22	298 10	24.5	24.5	23.9	26.7	39	. .	. .	. .	440	458	47.5	61 46 35.6	. .	+ 1 49.8	112 54 46·6	
23	350 44	3.6	1.0	2.0	2.5	34	. .	. .	. .	086	086	47.5	9 11 21.0	. .	+ 9.6	60 17 51.8	+ 1.4
24	23 4	3.9	2.3	2.5	2.9	34	. .	096	. .	085	. .	47.5	336 51 22.0	. .	− 25.3	27 57 17.9	− 2.0
25	31 2	2.4	0.0	28.8	1.6	37	560	. .	. .	. .	556	47.5	328 54 12.5	820	− 35.7	19 59 58.0	− 1.0
26	330 20	1.5	0.5	2.2	3.2	35	. .	950	. .	942	. .	47.5	29 35 48.9	. .	+ 33.6	80 42 43.7	+ 0.1
27	337 18	6.3	7.3	6.4	6.1	37	. .	274	. .	288	. .	47.9	22 38 14.5	. .	+ 25.2	73 45 0.9	+ 1.0
28	354 32	9 26.5	26.0	26.8	26.2	32	. .	978	. .	964	. .	47.9	5 22 58.3	902	+ 5.7	56 29 25.2	+ 3.5
29	354 0	2.4	1.7	3.0	3.4	35	. .	910	. .	922	. .	47.9	5 55 49.7	. .	+ 6.3	57 2 17.2	+ 0.1
30	336 16	0.0	0.6	2.5	0.1	35	. .	880	. .	850	. .	47.9	23 39 47.0	902	+ 26.5	74 46 34.7	+ 0.3
31	6 56	. .	28.2	. .	27.0	43	796	. .	. .	. .	. .	47.9	353 1 45.9	. .	− 7.4	44 7 59.7	− 2.1
32	312 42	3.5	2.8	4.3	4.0	35	. .	. .	. .	440	436	47.9	47 13 43.1	. .	+ 1 5.2	98 21 9.5	+ 0.8
33	349 32	9 25.0	25.4	26.5	25.4	35	. .	550	. .	564	. .	47 9	10 23 38.2	. .	+ 11.1	61 30 10.5	+ 1.0
34	320 40	9 25.4	24.8	26.8	26.5	39	. .	490	. .	430	. .	47.9	39 16 37.3	. .	+ 49.4	90 23 47.9	+ 0.2
35	303 10	9 24.4	23.0	23.9	24.0	41	. .	. .	. .	560	570	47.9	56 47 7.3	. .	+ 1 32.0	107 55 0.5	+ 0.5
36	319 46	28.6	29.4	0.0	29.7	36	. .	740	. .	770	. .	47.9	40 9 59.2	. .	+ 50.9	91 17 11.3	+ 0.9
37	328 26	2.5	2.3	4.6	3.0	37	338	334	. .	322	340	47.9	31 30 11.9	. .	+ 37.0	82 37 10.1	+ 1.4
38	30 24	1.2	1.4	1.7	0.8	38	786	788	. .	792	794	47.9	329 32 32.5	. .	− 35.5	20 38 18.2	+ 0.1
39	54 24	0.2	0.5	0.9	1.3	34	240	232	226	215	212	47.9	305 31 21.6	. .	− 1 24.3	356 36 18.5	+ 0.1
40	48 14	9 29.1	28.3	29.5	1.5	30	. .	. .	635	630	638	47.9	311 40 26.6	. .	− 1 7.7	2 45 40.1	− 1.2
41	343 16	1.4	0.2	2.0	1.5	38	. .	. .	. .	230	238	47.9	16 40 23.9	. .	+ 18.1	67 47 3.2	+ 1.0
42	353 12	0.5	0.7	2.0	1.9	34	778	774	. .	. .	. .	47.9	6 43 31.0	. .	+ 7.1	57 49 59.3	− 0.3
43	213 18	7.0	8.0	7.4	7.3	44	. .	. .	. .	405	. .	47.9	146 40 4.6	. .	− 39.7	84 26 56.3	+ 1.0
44	349 22	4.0	3.9	5.3	4.8	34	. .	. .	. .	400	390	47.9	10 33 28.3	. .	+ 11.3	61 40 0.8	+ 0.8
45																	
46	341 50	4.3	5.2	6.4	5.7	37	250	. .	. .	. .	400	47.9	18 6 14.2	902	+ 19.8	69 12 55.2	+ 2.4
47	341 50	4.3	5.2	6.4	5.7	37	. .	710	. .	660	. .	47.9	18 6 19.6	. .	+ 19.8	69 13 0.6	− 3.0
48	319 54	29.3	29.2	0.7	0.8	38	. .	950	. .	958	. .	47.9	40 2 18.2	908	+ 50.8	91 9 30.2	+ 4.3
49	332 16	29.8	0.3	0.4	0.9	35	. .	926	. .	910	. .	47.9	27 39 47.4	. .	+ 31.7	78 46 40.3	+ 0.8

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
24	30.084	64.0	43.0
30	. .	. .	31.8
32	. .	. .	32.0
47	. .	. .	30.6
48	. .	. .	30.6

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
21	− 7.9	+ 16 17.2	. .	+ 16 9.3
22	− 7.9	− 16 17.2	. .	− 16 25.1
46	− 0.3	+ 2.7	. .	+ 2.4
47	− 0.3	− 2.7	. .	− 3.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Jan. 5	1	Anonymous . .	F.	19.0	21.9	23.4	29.4	31.4	33.5	39.8	41.4	44.0	3 31.53	+ 0.20	. .	— 2.62	11 3 29.11	+ 0.30
	2	Anonymous . .	F.	57.0	. .	1.9	. .	. .	. .	. .	. .	. .	12 11.84	+ 0.33	. .	— 2.62	11 12 9.55	+ 0.22
	3	Anonymous . .	F.	25.6	28.6	30.6	36.0	38.5	41.0	43.4	. .	. .	19 40.87	+ 0.35	. .	— 2.62	11 19 38.58	+ 0.26
	4	υ Leonis	F.	13.5	16.0	17.5	23.7	25.7	27.8	33.9	35.6	37.8	30 25.70	+ 0.22	— 2.66	— 2.61	11 30 23.31	+ 0.01
	5	Anonymous . .	F.	47.4	51.0	53.0	51.5	4.4	7.2	15.5	17.5	20.8	35 4.26	+ 0.35	. .	— 2.61	11 35 2.00	+ 0.34
	6	Anonymous . .	F.	14.9	17.4	19.0	25.0	26.9	28.8	35.4	37.0	39.2	14 27.07	+ 0.23	. .	— 2.60	12 14 24.47	+ 0.70
8	7	Venus S. . . .	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	8	Venus II, N. . .	F.	29.6	32.3	33.8	40.5	42.9	45.0	51.3	53.0	55.4	12 42.64	— 0.22	. .	— 1.31	16 12 41.11	— 0.65
	9	α Lyræ	F.	19.2	22.5	24.6	32.4	34.9	37.5	45.4	47.3	50.6	32 34.93	+ 0.30	— 1.25	— 1.27	18 32 33.96	0.00
	10	ζ Aquilæ. . . .	F.	18.1	20.8	22.3	28.6	30.8	32.9	39.0	40.6	43.3	59 30.71	+ 0.08	— 1.39	— 1.26	18 59 29.53	+ 0.21
9	11	Sun I, S. . . .	F.	10.5	13.1	14.9	21.4	23.6	25.7	32.4	33.9	36.7	20 23.58	— 0.20	. .	— 1.25	19 20 22.13	. .
	12	Sun II, N. . . .	F.	31.4	34.3	35.7	42.5	44.9	47.0	53.6	55.3	57.9	22 44.73	— 0.20	. .	— 1.25	19 22 43.28	. .
	13	α Cephei	F.	2.6	8.0	11.4	24.5	28.9	33.1	46.4	49.5	55.0	15 28.82	+ 0.72	. .	— 1.22	21 15 28.32	— 0.07
	14	β Cephei	F.	20.3	27.6	32.3	50.4	56.2	2.0	20.2	24.7	31.9	26 56.18	+ 1.05	. .	— 1.21	21 26 56.02	— 0.26
	15	ε Pegasi	F.	40.6	43.3	44.9	51.0	53.0	55.2	1.3	2.9	5.5	37 53.08	+ 0.05	— 1.12	— 1.21	21 37 51.92	— 0.08
	16	α Aquarii . . .	F.	59.7	2.2	3.7	9.8	11.9	13.9	20.0	21.5	24.0	59 11.86	— 0.02	. .	— 1.20	21 59 10.64	+ 0.02
	17	Polaris	F.	. .	. .	42.0	6.0	31.0	56.0	21.0	. .	. .	11 31.20	. .	. .	. .	. . . .	. .
	18	ι Cassiopeæ . . .	F.	1.5	8.0	11.8	27.3	32.5	38.3	53.5	57.5	4.0	18 32.71	+ 1.17	. .	— 1.12	2 18 31.59	— 0.65
	19	5 Ursæ Minoris,S.P.	F.	. .	. .	7.8	59.2	50.9	41.9	32.9	. .	. .	27 50.54	— 1.80	. .	— 1.12	2 27 47.62	— 0.22
	20	γ Ceti.	F.	28.5	31.0	32.6	38.8	40.8	42.8	49.0	50.5	53.0	36 40.78	+ 0.10	— 1.12	— 1.11	2 36 39.77	+ 0.01
	21	48 Cephei	F.	14.2	25.5	32.3	0.5	9.8	19.0	46.6	53.4	5.2	4 9.61	+ 2.14	. .	— 1.10	3 4 10.65	+ 0.24
	22	ζ Arietis	F.	. .	. .	. .	. .	. .	37.7	42.0	43.6	46.3	7 33.26	+ 0.26	— 1.06	— 1.10	3 7 32.42	— 0.08
	23	α Persei	F.	53.4	57.4	59.6	9.2	12.2	15.3	24.9	27.3	31.0	15 12.26	+ 0.63	. .	— 1.10	3 15 11.79	+ 0.42
	24	γ^2 Ursæ Minoris,S.P.	F.	37.8	29.3	24.2	4.2	57.3	50.3	30.6	25.4	16.9	20 57.33	— 1.33	. .	— 1.10	15 20 54.90	+ 0.16
	25	δ Persei	F.	31.8	35.3	37.4	46.9	49.6	52.8	1.8	3.9	7.9	33 49.71	+ 0.59	. .	— 1.09	3 33 49.21	+ 0.30
10	26	o Piscium . . .	S.	25.5	28.2	29.8	36.0	38.0	40.1	46.3	47.8	50.6	38 38.03	— 0.03	— 0.59	— 0.58	1 38 37.42	— 0.02
	27	β Arietis	S.	21.0	23.8	25.3	32.0	34.0	36.3	42.7	44.5	47.2	47 34.09	+ 0.05	— 0.57	— 0.58	1 47 33.56	+ 0.01
	28	α Arietis	S.	44.1	47.0	48.5	55.1	57.4	59.5	6.4	8.0	10.9	59 57.43	+ 0.07	— 0.53	— 0.58	1 59 56.92	— 0.04
	29	ζ^1 Ceti.	S.	0.6	3.2	4.9	11.0	13.0	15.2	21.3	23.0	25.6	4 13.09	— 0.03	— 0.65	— 0.58	2 4 12.48	+ 0.11
	30	ζ Arietis	S.	45.0	47.6	49.2	55.5	57.5	59.6	5.8	7.4	10.0	17 57.51	— 0.01	. .	— 0.58	2 17 56.92	+ 0.58
	31	ζ^2 Ceti.	S.	9.0	11.5	13.2	19.4	21.3	23.5	29.7	31.2	33.9	21 21.41	— 0.03	. .	— 0.57	2 21 20.81	+ 0.55
11	32	η Herculis . . .	E.	13.0	16.2	18.3	26.0	28.8	31.5	39.3	41.3	44.4	38 28.76	+ 0.27	— 0.41	— 0.60	16 38 28.43	— 0.18
	33	κ Ophiuchi . . .	E.	22.7	25.4	26.9	33.0	35.1	37.3	43.4	45.0	47.5	51 35.14	+ 0.02	— 0.44	— 0.60	16 51 34.55	— 0.12
	34	α Herculis . . .	E.	34.6	37.2	38.8	45.0	47.2	49.4	55.6	57.0	59.7	8 47.17	+ 0.05	— 0.47	— 0.59	17 8 46.63	— 0.10
	35	δ Ursæ Minoris. .	E.	. .	. .	5.5	40.0	15.5	49.0	25.5	. .	. .	13 15.10	— 5.96	. .	— 0.58	18 13 20.48	— 0.67
	36	α Lyræ	E.	18.5	21.8	23.8	31.6	34.3	37.0	44.8	46.8	50.0	32 34.29	+ 0.26	— 0.53	— 0.57	18 32 33.98	— 0.02
	37	β Lyræ	E.	4.6	7.7	9.6	16.8	19.3	21.7	29.0	30.9	34.0	45 19.29	+ 0.21	— 0.47	— 0.57	18 45 18.93	— 0.07
	38	δ Draconis . . .	E.	55.3	2.0	5.9	22.0	27.3	32.6	38.5	42.4	49.2	12 27.24	+ 0.86	. .	— 0.56	19 12 27.54	— 0.05
12	39	Sun I, N. . . .	E.	12.0	14.7	16.4	23.1	25.4	27.5	34.0	35.7	38.3	33 25.23	— 0.25	. .	— 0.56	19 33 24.42	. .
	40	Sun II.S. . . .	E.	32.7	35.5	37.0	43.6	45.9	48.1	54.7	56.3	59.2	35 45.89	— 0.25	. .	— 0.56	19 35 45.08	. .
	41	α Cygni	E.	44.5	48.3	50.5	59.1	2.0	4.8	13.5	15.6	19.0	37 1.92	+ 0.34	. .	— 0.54	20 37 1.72	+ 0.05
	42	ζ Cygni	E.	13.5	16.4	18.1	25.2	27.5	29.7	37.0	38.8	41.7	7 27.54	+ 0.18	— 0.54	— 0.54	21 7 27.18	+ 0.01
	43	1 Pegasi	E.	55.5	58.3	59.8	6.3	8.4	10.5	17.0	18.6	21.5	16 8.43	+ 0.08	— 0.54	— 0.53	21 16 7.58	— 0.44
	44	β Aquarii. . . .	E.	35.6	38.0	39.6	55.8	48.0	50.0	56.0	57.6	0.0	24 47.84	— 0.12	— 0.59	— 0.53	21 24 47.19	+ 0.09
	45	β Cephei	E.	. .	. .	. .	. .	. .	7.7	19.3	23.8	31.5	26 55.67	+ 0.08	. .	— 0.53	21 26 56.12	— 0.06
	46	ε Pegasi	E.	40.1	42.7	44.4	50.4	52.5	54.5	0.7	2.3	5.0	37 52.51		0.00	— 0.51	— 0.53	21 37 51.98	— 0.01
	47	γ^2 Ceti.	E.	28.0	30.6	32.0	38.3	40.4	42.4	48.4	50.0	52.5	36 40.29	— 0.06	— 0.50	— 0.46	2 36 39.77	+ 0.04
	48	β Ursæ Minoris,S.P.	E.	. .	. .	22.3	14.7	6.7	59.0	51.0	. .	. .	51 6.74	— 1.28	. .	— 0.46	2 51 5.00	+ 0.50
	49	α Ceti.	E.	23.3	26.0	27.5	33.5	35.6	37.6	43.8	45.4	47.9	55 35.62	— 0.06	— 0.51	— 0.45	2 55 35.11	+ 0.08

13, 19, 24. Bisections at sets B and D.
21, 22. Telescope micrometer readings diminished five revolutions in reduction.
48. Bisections at set C.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	330 52	9 26.5	26.9	28.8	28.2	41	. .	050	. .	084	. .	47.9	29 5 3.7	. .	+ 33.7	80 11 58.6	+ 1.1
2	286 36	1.6	1.5	3.3	3.4	40	. .	. .	. .	. .	574	47.9	73 21 0.4	. .	+ 3 20.0	124 30 41.6	+14.9
3	284 54	3.2	4.0	5.2	1.3	35	. .	428	. .	432	. .	47.9	75 1 42.6	. .	+ 3 43.0	126 11 46.8	+15.5
4	320 56	0.3	0.0	0.8	1.5	35	. .	890	. .	886	. .	47.9	38 59 47.1	. .	+ 49.0	90 6 57.3	+ 0.1
5	278 46	4.5	4.6	3.5	4.2	37	. .	550	. .	576	. .	47.9	81 10 16.2	. .	+ 6 13.6	132 22 51.0	+17.5
6	319 20	4.2	2.8	3.7	5.4	34	. .	810	. .	804	. .	47.9	40 35 33.9	908	+ 51.8	91 42 46.9	+ 4.4
7	302 32	10.6	7.8	11.8	10.6	31	965	. .	. .	. .	927	51.3	57 22 59.3	. .	+ 1 35.7	108 30 56.2	−18.8
8	302 32	10.6	7.8	11.8	10.6	30	. .	578	. .	570	. .	51.3	57 22 38.4	. .	+ 1 35.7	108 30 35.3	+ 2.1
9	359 42	29.2	26.5	0.9	28.4	35	. .	. .	. .	756	756	51.3	0 13 47.0	. .	+ 0.2	51 20 8.4	− 0.4
10	334 42	14.0	11.6	16.2	16.5	32	. .	. .	. .	660	658	51.3	25 12 44.9	. .	+ 28.3	76 19 34.4	− 0.2
11	298 40	24.5	22.3	25.0	23.2	37	885	751	. .	. .	. .	51.3	61 16 13.0	. .	+ 1 49.2	112 24 23.4	
12	299 12	15.9	13.2	16.2	16.5	36	. .	. .	. .	218	160	51.3	60 43 39.9	. .	+ 1 46.9	111 51 48.0	
13	23 4	9 25.8	23.5	24.0	26.4	34	. .	340	. .	330	. .	51.3	336 51 21.0	. .	− 25.5	27 57 16.7	− 4.2
14	31 2	9 20.1	17.6	19.0	22.5	38	. .	116	. .	122	. .	51.3	328 54 14.9	. .	− 35.9	20 0 0.2	0.0
15	330 20	00.0	26.5	29.1	0.8	35	. .	988	. .	998	. .	51.3	29 35 50.6	. .	+ 33.8	80 42 45.6	+ 1.4
16	320 6	5.3	2.8	4.6	6.4	33	. .	976	. .	966	. .	51.3	39 49 25.2	. .	+ 49.7	90 56 36.1	+ 1.5
17																	
18	27 52	6.1	3.6	3.8	4.6	38	. .	068	. .	104	. .	51.3	332 4 29.0	. .	− 32.3	23 10 17.9	− 0.8
19	64 44	9 27.5	26.4	27.6	0.6	34	548	. .	. .	. .	558	51.3	295 11 27.2	. .	− 2 8.9	346 15 39.5	+ 2.1
20	323 44	9 27.9	25.3	25.9	29.1	34	. .	096	. .	096	. .	51.3	36 11 19.4	. .	+ 44.6	87 18 25.2	+ 2.1
21	38 16	9 24.0	21.5	22.8	24.3	36	. .	. .	. .	. .	490	51.3	321 38 35.9	. .	− 48.0	12 44 9.1	− 0.6
22	341 36	5.8	5.0	5.6	7.4	38	. .	010	. .	988	. .	51.3	18 19 11.6	. .	+ 20.3	69 25 53.1	+ 0.9
23	10 26	29.4	28.6	29.6	1.2	34	. .	436	. .	486	. .	51.3	349 29 28.0	. .	− 11.3	40 35 37.9	− 2.2
24	68 42	3.6	1.1	2.7	5.6	33	. .	890	. .	840	. .	51.3	291 13 21.9	. .	− 2 36.2	342 17 6.9	− 1.4
25	8 24	9 27.8	26.4	27.3	28.3	33	. .	228	. .	226	. .	51.3	351 31 6.8	. .	− 9.1	42 37 18.9	− 1.0
26	329 34	9.0	6.0	7.2	8.2	37	530	570	. .	540	540	50.8	30 22 22.6	. .	+ 35.6	81 29 19.4	+ 0.4
27																	
28	343 54	13.0	10.3	11.5	11.5	35	705	705	. .	700	700	50.8	16 1 58.4	. .	+ 17.5	67 8 37.1	0.0
29	329 18	4.0	1.3	2.5	3.0	37	. .	967	. .	967	. .	50.8	30 38 24.1	. .	+ 36.0	81 45 21.3	− 0.5
30	331 4	15.3	13.5	15.2	15.0	33	. .	125	. .	045	. .	50.8	28 51 21.2	. .	+ 33.6	79 58 16.0	− 3.5
31	328 55	11.9	11.2	9.4	11.4	31	. .	950	. .	905	. .	50.8	30 59 59.6	. .	+ 36.6	82 6 57.4	− 4.2
32	0 12	10 8.8	8.5	7.4	6.8	35	. .	210	. .	240	. .	50.0	359 43 46.6	. .	− 0.3	50 50 7.5	+ 0.1
33	330 38	10 10.1	9.0	10.8	10.5	38	. .	265	. .	285	. .	50.0	29 18 35.5	. .	+ 33.6	80 25 30.3	+ 0.3
34	335 36	7.5	6.2	7.0	7.0	39	. .	970	. .	992	. .	50.0	24 20 58.5	. .	+ 27.0	75 27 46.7	− 1.0
35	47 38	10 13.0	11.2	11.1	13.5	37	438	. .	. .	. .	445	50.0	312 18 24.0	. .	− 1 4.9	3 23 41.2	− 2.6
36	359 42	10 7.0	5.0	5.9	5.3	35	. .	412	. .	440	. .	50.0	0 13 47.6	. .	+ 0.2	51 20 9.0	− 0.8
37	354 16	10 12.3	11.5	13.8	13.0	38	. .	540	. .	608	. .	50.0	5 40 42.8	. .	+ 5.8	56 47 9.8	− 0.9
38	28 28	10 9.3	7.4	9.0	9.1	36	. .	110	. .	150	. .	50.0	331 28 1.8	. .	− 31.8	22 33 51.2	− 3.2
39	299 40	9.6	9.0	10.2	12.4	37	548	472	. .	. .	. .	50.0	60 16 23.5	. .	+ 1 41.8	111 24 26.5	
40	299 8	2.4	29.4	1.7	2.7	40	. .	. .	. .	370	335	50.0	60 48 58.7	. .	+ 1 44.1	111 57 4.0	
41	5 52	10 3.2	3.2	5.1	3.0	37	. .	708	. .	712	. .	50.0	354 4 20.6	. .	− 6.1	45 10 35.7	− 0.3
42	350 44	10 6.0	5.2	8.2	7.6	33	. .	735	. .	750	. .	50.0	9 11 22.6	. .	+ 9.4	60 17 53.2	+ 1.2
43	340 18	10 10.8	9.3	11.1	12.3	35	. .	600	. .	600	. .	50.0	19 37 55.2	. .	+ 20.8	70 44 37.2	+ 2.7
44	314 56	10 7.4	6.0	8.5	7.8	39	. .	410	. .	385	. .	50.0	45 0 50.0	. .	+ 58.2	96 8 9.4	+ 2.4
45	31 2	10 6.6	7.7	9.8	8.8	36	. .	. .	. .	970	950	50.0	328 54 13.4	. .	− 35.1	19 59 59.5	− 1.5
46	330 20	9 15.5	14.0	14.4	16.1	37	. .	024	. .	049	. .	50.0	29 35 51.3	. .	+ 33.1	80 42 45.6	+ 1.0
47	323 44	10 8.7	7.6	8.1	7.2	33	. .	425	. .	403	. .	51.6	36 11 20.1	. .	+ 43.3	87 18 24.6	+ 1.3
48	66 20	10 6.5	5.0	7.3	5.3	37	438	. .	. .	. .	390	51.6	293 36 19.6	. .	− 2 14.9	344 40 25.9	− 0.2
49	324 38	10 11.8	10.0	12.2	9.8	35	. .	320	. .	350	. .	51.6	35 17 52.7	. .	+ 42.0	86 24 55.9	+ 0.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
6	. .	. .	31.0
8	30.346	66.0	28.8
9	. .	. .	37.0
12	. .	. .	39.5
15	30.288	67.0	43.5
21	. .	. .	30.2
22	30.270	67.0	29.8
25	30.278	66.0	31.5
27	30.157	67.0	
28	. .	. .	30.5
30	. .	. .	30.0
32	30.078	63.5	36.0
40	30.060	67.0	49.5
47	30.010	70.5	41.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
7	− 8.1	− 10.7	. .	− 18.8
8	− 8.1	+ 10.7	− 0.5	+ 2.1
11	− 7.9	− 16 17.7	. .	− 16 25.6
12	− 7.9	+ 16 17.7	. .	+ 16 9.8
39	− 7.8	+ 16 18.8	. .	+ 16 11.0
40	− 7.8	− 16 18.8	. .	− 16 26.6

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Jan. 12	1	48 Cephei	E.	. .	. .	50.8	0.6	9.2	18.7	28.0	. .	. .	4 9.46	+ 1.51	. .	— 0.45	3 4 10.52	+ 0.32
	2	ζ Arietis	E.	29.7	32.5	34.1	30.7	32.9	35.0	41.7	43.3	46.0	7 32.88	+ 0.07	— 0.52	— 0.45	3 7 32.50	+ 0.03
	3	α Persei	E.	52.5	56.5	58.7	8.2	11.4	14.6	24.0	26.5	30.5	15 11.43	+ 0.36	. .	— 0.45	3 15 11.34	+ 0.02
	4	γ^2 Ursæ Minoris, S.P.	E.	. .	. .	9.8	3.2	56.3	49.8	43.0	. .	. .	20 56.42	— 1.10	. .	— 0.45	3 20 54.87	— 0.07
	5	δ Persei	E.	31.0	34.7	37.0	46.0	49.0	52.0	1.1	3.4	7.0	33 49.02	+ 0.34	. .	— 0.45	3 33 48.91	+ 0.05
	6	η Tauri	E.	39.4	42.3	43.8	50.5	52.9	55.1	1.7	3.4	6.3	39 52.82	+ 0.10	— 0.42	— 0.44	3 39 52.48	— 0.02
	7	ζ Persei	E.	51.2	54.1	56.0	3.2	5.5	7.9	15.3	16.9	19.8	46 5.54	+ 0.16	— 0.50	— 0.44	3 46 5.10	— 0.11
	8	γ^1 Eridani. . . .	E.	51.5	54.4	55.8	2.2	4.3	6.4	12.7	14.3	16.8	52 4.27	— 0.18	— 0.52	— 0.44	3 52 3.65	+ 0.12
	9	γ Tauri	E.	18.4	21.0	22.5	29.0	31.0	33.1	39.5	41.0	43.8	12 31.03	+ 0.03	— 0.44	— 0.44	4 12 30.62	+ 0.01
	10	ε Tauri	E.	56.0	58.7	0.4	6.9	9.2	11.3	17.5	19.4	22.0	21 9.04	+ 0.05	— 0.47	— 0.43	4 21 8.66	+ 0.03
	11	α Tauri	E.	22.3	25.0	26.6	33.0	35.0	37.2	43.5	45.2	47.9	28 35.08	+ 0.04	— 0.45	— 0.43	4 28 34.69	0.00
	12	11 Orionis. . . .	E.	3.0	5.8	7.5	13.9	16.0	18.1	24.4	26.0	28.6	57 15.92	+ 0.03	— 0.45	— 0.43	4 57 15.52	— 0.05
	13	α Aurigæ. . . .	E.	. .	. .	8.5	11.5	14.4	17.4	20.5	. .	. .	7 14.46	+ 0.31	. .	— 0.42	5 7 14.35	— 0.16
	14	β Orionis. . . .	E.	11.7	14.3	15.8	22.0	24.0	26.1	32.3	34.0	36.4	8 24.07	— 0.14	— 0.39	— 0.42	5 8 23.51	— 0.03
	15	β Tauri	E.	58.6	1.6	3.4	10.3	12.6	15.0	22.0	23.8	26.7	18 12.67	+ 0.13	— 0.50	— 0.42	5 18 12.38	— 0.06
	16	Groombridge 966.	E.	. .	. .	23.3	30.6	39.3	47.1	55.0	. .	. .	22 39.06	+ 1.26	. .	— 0.42	5 22 39.90	+ 0.07
	17	δ Orionis. . . .	E.	16.6	19.2	20.8	26.8	28.9	31.0	37.0	38.6	41.0	25 28.88	— 0.08	— 0.43	— 0.42	5 25 28.38	— 0.02
	18	ε Orionis. . . .	E.	31.7	34.4	36.0	42.0	44.1	46.2	52.3	53.8	56.2	29 44.68	— 0.09	— 0.54	— 0.42	5 29 43.57	+ 0.11
	19	α Columbæ . . .	E.	47.6	50.7	52.6	0.1	2.6	5.0	12.4	14.3	17.3	35 2.51	— 0.37	— 0.42	— 0.42	5 35 1.72	— 0.04
	20	ψ^1 Draconis, S. P. .	E.	. .	. .	24.7	17.8	11.3	4.7	57.8	. .	. .	44 11.26	— 1.09	. .	— 0.41	5 44 9.76	+ 0.31
	21	α Orionis. . . .	E.	2.9	5.5	7.0	13.2	15.3	17.4	23.6	25.0	27.7	48 15.29	— 0.03	— 0.41	— 0.41	5 48 14.85	— 0.03
	22	22 Camelopardalis .	E.	. .	. .	34.0	40.1	45.9	51.7	57.3	. .	. .	4 45.80	+ 0.89	. .	— 0.41	6 4 46.27	+ 0.47
	23	δ Ursæ Minoris, S.P.	E.	. .	. .	36.5	1.5	27.0	52.0	17.5	. .	. .	13 26.90	— 5.98	. .	— 0.41	18 13 20.51	— 0.68
13	24	Moon I. . . .	F.	. .	. .	. .	10.9	13.0	15.0	19.3	21.0	23.7	44 10.72	— 0.41	. .	+ 0.11	22 44 10.42	+69.25
	25	α Piscis Australis .	F.	19.0	21.9	23.5	30.6	33.0	35.4	42.5	44.3	47.3	50 33.06	— 0.61	+ 0.12	+ 0.12	22 50 32.58	+ 0.05
	26	α Pegasi	F.	8.8	11.5	13.0	19.4	21.5	23.6	29.9	31.6	34.1	58 21.49	— 0.13	+ 0.12	+ 0.12	22 58 21.48	+ 0.03
16	27	Polaris	E.	. .	. .	. .	. .	8.5	37.5	1.5	. .	. .	11 10.43	. .	. .	. .	. . .	. .
	28	Moon I, S. . . .	E.	24.8	27.4	28.9	35.2	37.3	39.3	45.7	47.3	49.9	18 37.31	— 0.49	. .	+ 0.97	1 18 37.79	+63.81
	29	η Piscium . . .	E.	23.9	26.6	28.2	34.5	36.6	38.7	45.0	46.6	49.4	24 36.61	— 0.32	+ 0.94	+ 0.97	1 24 37.26	+ 0.10
	30	o Piscium . . .	E.	24.4	27.0	28.5	34.7	36.7	38.8	44.9	46.5	49.2	38 36.74	— 0.41	+ 1.01	+ 0.98	1 38 37.31	— 0.06
	31	β Arietis	E.	19.7	22.5	24.0	30.5	32.8	35.0	41.5	43.0	45.8	47 32.76	— 0.26	+ 0.99	+ 0.98	1 47 33.48	+ 0.01
	32	α Arietis	E.	. .	. .	. .	. .	. .	. .	4.9	6.7	9.4	59 56.10	— 0.20	+ 1.00	+ 0.99	1 59 56.89	0.00
17	33	α Arietis	F.	42.2	45.0	46.6	53.2	55.5	57.7	4.4	6.0	8.8	59 55.49	— 0.29	+ 1.69	+ 1.69	1 59 56.89	+ 0.01
	34	ξ Ceti.	F.	58.9	1.5	3.0	7.2	9.2	11.3	13.3	. .	. .	6 11.28	— 0.54	+ 1.57	+ 1.69	2 6 12.43	+ 0.16
	35	Moon I, S. . . .	F.	15.2	17.7	19.3	25.6	27.8	29.8	36.6	37.8	40.4	6 27.80	— 0.54	. .	+ 1.70	2 6 28.96	+63.54
	36	ξ Arietis	F.	43.2	45.9	47.3	53.5	55.6	57.7	3.9	5.4	8.0	17 55.61	— 0.51	. .	+ 1.70	2 17 56.80	+ 0.68
	37	μ Arietis	F.	54.3	57.0	58.5	5.0	7.2	9.3	15.9	17.4	20.2	35 7.20	— 0.36	. .	+ 1.70	2 35 8.54	+ 0.62
	38	38 Arietis	F.	44.9	47.6	49.1	55.5	57.5	59.6	5.8	7.3	10.0	37 57.48	— 0.48	. .	+ 1.70	2 37 58.70	+ 0.58
	39	σ Arietis	F.	11.2	14.0	15.6	21.7	23.9	26.0	32.3	33.9	36.5	44 23.90	— 0.44	. .	+ 1.71	2 44 25.17	+ 0.55
	40	ρ^3 Arietis	F.	0.7	2.3	6.6	8.8	11.0	13.0	15.2	19.5	21.0	49 10.90	— 0.39	. .	+ 1.71	2 49 12.61	+ 0.54
	41	α Ceti.	F.	21.6	24.2	25.7	31.8	33.9	35.9	42.1	43.6	46.2	55 33.89	— 0.61	+ 1.72	+ 1.71	2 55 34.99	+ 0.01
	42	δ Arietis	F.	4.0	6.8	8.4	14.8	16.9	19.0	25.7	27.2	30.0	4 16.98	— 0.36	. .	+ 1.71	3 4 18.33	+ 0.46
	43	ζ Arietis	F.	17.9	20.6	22.3	28.8	31.0	33.2	39.6	41.2	44.0	7 30.96	— 0.33	+ 1.74	+ 1.72	3 7 32.35	— 0.08
	44	τ^1 Arietis	F.	38.2	39.8	44.2	46.5	48.7	50.9	53.0	57.4	59.0	13 48.63	— 0.33	. .	+ 1.72	3 13 50.02	+ 0.39
	45	τ^2 Arietis	F.	. .	. .	. .	. .	23.8	26.0	30.3	32.1	34.7	15 21.65	— 0.34	. .	+ 1.72	3 15 23.03	+ 0.38
	46	f Tauri	F.	34.4	37.0	38.7	44.9	46.9	49.0	55.4	56.9	59.6	23 46.98	— 0.47	. .	+ 1.72	3 23 48.23	+ 0.31
	47	9 Tauri	F.	11.5	14.3	16.0	22.6	24.8	27.0	33.6	35.3	38.2	29 24.81	— 0.29	. .	+ 1.72	3 29 26.24	+ 0.31
	48	13 Tauri	F.	41.5	44.3	45.9	52.4	54.6	56.8	3.3	4.8	7.5	34 54.57	— 0.36	. .	+ 1.72	3 34 55.93	+ 0.27
	49	η Tauri	F.	37.6	40.4	42.0	48.7	51.0	53.2	0.0	1.6	4.4	39 50.99	— 0.28	+ 1.74	+ 1.72	3 39 52.43	— 0.02

16. Bisections at set C.
13, 20, 22. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Correction.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	38 16	10 15.8	13.8	14.5	13.2	29	. .	960	. .	930	. .	51.6	321 38 34.8	. .	— 46.9	12 44 9.1	— 0.1
2																	
3	10 26	10 10.0	10.5	11.0	9.0	33	. .	842	. .	828	. .	51.6	349 29 29.2	. .	— 11.0	40 35 39.4	— 0.4
4	68 42	10 8.7	7.6	9.1	7.2	33	. .	108	. .	110	. .	51.6	291 13 14.6	. .	— 2 31.8	342 17 4.0	— 3.6
5	8 24	10 14.0	11.6	13.7	10.6	32	. .	190	. .	160	. .	51.6	351 31 6.0	. .	— 8.9	42 37 18.3	— 1.3
6	344 44	10 9.5	7.2	9.2	6.2	31	. .	733	. .	772	. .	51.6	15 10 54.8	. .	+ 16.1	66 17 32.1	+ 0.3
7	352 32	10 11.2	8.6	11.0	7.8	33	. .	515	. .	545	. .	51.6	7 23 23.8	. .	+ 7.7	58 29 52.7	+ 1.2
8	307 10	10 8.5	8.1	9.7	10.1	31	. .	830	. .	930	. .	51.6	52 44 57.7	. .	+ 1 18.0	103 52 36.9	+ 1.9
9	336 22	10 10.5	8.2	10.2	8.0	36	. .	932	. .	913	. .	51.6	23 34 15.9	. .	+ 26.0	74 41 3.1	+ 2.6
10	339 56	10 12.2	9.7	11.5	8.2	34	. .	395	. .	421	. .	51.6	19 59 38.0	. .	+ 21.7	71 6 20.9	+ 2.0
11	337 18	10 17.2	15.8	17.2	15.5	36	. .	520	. .	563	. .	51.6	22 38 16.8	. .	+ 24.8	73 45 2.8	+ 2.8
12	336 16	10 13.4	12.0	13.8	12.5	34	. .	968	. .	000	. .	51.6	23 39 49.3	. .	+ 26.1	74 46 36.6	+ 2.0
13	6 54	10 9.2	9.3	10.5	7.7	35	. .	025	. .	080	. .	51.6	353 1 46.7	. .	— 7.3	44 8 0.6	— 0.3
14	312 42	9 27.2	25.6	26.9	25.8	35	. .	832	. .	918	. .	51.6	47 13 46.3	. .	+ 1 4.4	98 21 11.9	+ 2.3
15	349 32	10 11.6	9.4	10.9	8.5	34	. .	418	. .	422	. .	51.6	10 23 37.9	. .	+ 11.0	61 30 10.1	+ 0.9
16	35 58	10 19.6	17.0	18.5	17.2	31	450	. .	. .	. .	450	51.6	323 57 0.2	. .	— 43.4	15 2 38.0	— 0.8
17	320 40	10 5.9	4.0	5.4	3.0	38	. .	815	. .	810	. .	51.6	39 16 39.7	. .	+ 48.8	90 23 49.7	+ 1.3
18	319 46	10 15.4	14.2	14.4	13.3	35	. .	752	. .	700	. .	51.6	40 10 2.0	. .	+ 50.3	91 17 13.5	+ 2.3
19	286 56	10 18.3	16.2	16.8	17.2	32	. .	335	. .	382	. .	51.6	72 59 12.9	. .	+ 3 12.7	124 8 46.8	+ 3.1
20	68 48	18.2	17.0	17.8	17.3	38	. .	078	. .	002	. .	51.6	291 8 40.7	. .	— 2 33.2	342 12 28.7	— 1.2
21	328 26	10 14.2	11.1	12.3	9.7	36	. .	590	. .	622	. .	51.6	31 30 13.1	. .	+ 36.6	82 37 10.9	+ 1.7
22	30 24	10 15.7	14.6	15.3	13.7	37	. .	560	. .	582	. .	51.6	329 32 31.0	. .	— 35.1	20 38 17.1	+ 0.9
23	54 24	10 10.2	8.8	10.2	9.2	33	125	. .	. .	. .	230	51.6	305 31 18.0	. .	— 1 23.5	356 36 15.7	— 0.3
24																	
25																	
26																	
27	49 38	7.7	5.7	9.3	6.8	31	. .	. .	705	730	715	53.2	310 16 55.3	. .	— 1 11.2	1 22 5.3	— 3.1
28	323 42	10 2.5	1.3	4.5	2.8	35	. .	335	050	740	. .	53.2	36 13 41.6	. .	+ 44.2	87 20 46.8	
29	335 44	10 3.0	0.0	3.0	0.2	36	. .	740	. .	775	. .	53.2	24 12 6.8	. .	+ 27.1	75 18 55.1	— 0.2
30	329 34	10 9.8	6.5	9.0	7.8	37	. .	508	. .	531	. .	53.2	30 22 25.2	. .	+ 35.4	81 29 41.8	+ 2.4
31	341 14	8.2	5.3	7.3	6.4	37	. .	635	. .	690	. .	53.2	19 42 26.0	. .	+ 21.6	70 49 8.8	+ 1.8
32	343 54	10 1.7	29.8	2.0	29.3	36	. .	268	. .	280	. .	53.2	16 1 58.6	. .	+ 17.4	67 8 37.2	— 0.1
33	343 54	10 0.5	27.4	29.6	29.8	36	350	358	. .	348	346	53.7	16 1 59.0	. .	+ 17.4	67 8 37.6	+ 0.3
34																	
35	329 4	0.7	26.2	28.9	29.9	34	. .	124	918	764	. .	53.7	30 51 21.3	. .	+ 36.7	81 58 19.2	
36	331 4	6.5	3.4	6.1	5.6	33	. .	570	. .	574	. .	53.7	28 51 22.2	. .	+ 33.8	79 58 17.2	— 3.8
37	340 30	5.6	2.1	3.2	4.3	33	. .	878	. .	874	. .	53.7	19 25 25.3	. .	+ 21.7	70 32 8.2	— 0.3
38	332 58	3.7	0.5	2.9	3.6	39	. .	450	. .	458	. .	53.7	26 58 49.9	. .	+ 31.3	78 5 43.4	— 2.4
39	335 36	0.0	26.6	28.5	27.7	36	. .	578	. .	588	. .	53.7	24 20 1.3	. .	+ 27.8	75 26 50.3	— 1.7
40	338 34	10 9.5	6.7	7.4	9.4	38	. .	165	. .	175	. .	53.7	21 22 35.8	. .	+ 24.0	72 29 21.0	— 1.2
41	324 38	9 28.4	25.1	28.3	28.9	35	. .	952	. .	940	. .	53.7	35 17 50.9	. .	+ 43.5	86 24 55.6	0.0
42	340 18	10 16.0	12.3	15.0	16.3	38	. .	638	. .	626	. .	53.7	19 38 49.5	. .	+ 22.0	70 45 32.7	+ 0.2
43	341 36	10 14.1	10.1	12.2	13.0	32	. .	430	. .	428	. .	53.7	18 19 11.7	. .	+ 20.9	69 25 53.8	+ 1.5
44	341 44	4.8	1.6	3.2	4.3	37	. .	. .	. .	178	176	53.7	18 12 15.7	. .	+ 20.4	69 18 57.3	+ 0.5
45	341 20	5.2	1.7	3.5	4.5	37	. .	. .	. .	570	578	53.7	18 36 22.1	. .	+ 20.7	69 43 4.0	+ 0.3
46	333 32	13.2	9.5	12.5	12.7	33	. .	286	. .	304	. .	53.7	26 23 24.5	. .	+ 30.6	77 30 16.3	— 2.0
47	343 50	11.6	8.0	10.4	11.0	36	. .	. .	. .	330	356	53.7	16 6 9.7	. .	+ 17.8	67 12 48.7	+ 1.3
48	340 20	10.2	7.5	9.2	10.5	35	. .	658	. .	650	. .	53.7	19 35 58.2	. .	+ 21.9	70 42 41.3	+ 0.4
49	344 44	8.9	5.1	7.5	7.7	31	. .	548	. .	548	. .	53.7	15 10 53.1	. .	+ 16.7	66 17 31.0	— 0.8

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
23	. .	. .	36.0
26	29.760	67.0	52.0
29	30.006	65.5	31.5
36	30.248	66.0	27.2
41	. .	. .	27.0
43	30.250	65.0	26.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	″ ′	′ ″	′ ″	′ ″
28	—33 10.9	— 15 24.8	. .	— 48 35.7
35	—28 21.7	— 15 11.7	. .	— 43 33.4

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Jan. 17	1	ζ Persei	F.	49.0	52.2	53.9	1.2	3.7	6.0	13.0	14.8	17.9	46 3.52	— 0.12	+ 1.75	+ 1.73	3 46 5.13	— 0.03
	2	33 Tauri	F.	13.7	16.6	18.3	24.8	27.0	29.2	35.8	37.5	40.2	49 27.01	— 0.29	. .	+ 1.73	3 49 28.45	+ 0.17
	3	A^1 Tauri	F.	53.1	55.9	57.6	4.0	6.3	8.5	15.0	16.8	19.5	57 6.30	— 0.31	. .	+ 1.73	3 57 7.72	+ 0.15
	4	B. A. C. 1272 . .	F.	25.4	28.2	29.8	36.2	38.3	40.4	46.9	48.3	51.0	0 38.28	— 0.40	. .	+ 1.73	4 0 39.61	+ 0.13
	5	ω^2 Tauri	F.	31.1	33.9	35.6	42.0	44.2	46.4	53.0	54.6	57.3	9 44.23	— 0.34	. .	+ 1.73	4 9 45.62	+ 0.10
	6	δ^2 Tauri	F.	28.9	31.6	33.2	39.6	41.7	43.9	50.3	51.9	54.6	16 41.74	— 0.40	. .	+ 1.73	4 16 43.07	+ 0.06
	7	ε Tauri	F.	54.3	57.0	58.6	4.9	7.0	9.4	16.0	17.5	20.2	21 7.21	— 0.36	+ 1.74	+ 1.74	4 21 8.59	— 0.01
	8	a Tauri	F.	. .	. .	29.0	31.2	33.3	35.4	37.5	. .	. .	28 33.28	— 0.41	+ 1.77	+ 1.74	4 28 34.61	— 0.05
	9	Anonymous . .	F.	29.9	33.0	34.9	42.0	44.5	47.1	54.4	56.2	59.3	32 44.59	— 0.08	. .	+ 1.74	4 32 46.25	— 0.02
	10	i Tauri	F.	39.0	41.7	43.2	49.8	52.0	54.0	0.6	2.0	4.9	43 51.91	— 0.37	. .	+ 1.74	4 43 53.28	— 0.06
	11	99 Tauri	F.	. .	56.9	59.1	1.4	3.7	6.0	10.4	12.0	14.9	50 1.43	— 0.27	. .	+ 1.75	4 50 2.91	— 0.09
	12	δ Ursæ Minoris, S.P.	F.	2.5	19.0	. .	42.5	. .	. .	. .	. .	. .	13 34.83	—15.84	. .	+ 1.77	6 13 20.76	— 0.98
	13	γ Geminorum . .	F.	. .	15.9	18.0	20.1	22.2	. .	26.6	28.2	30.9	30 18.02	— 0.41	+ 1.82	+ 1.78	6 30 19.39	— 0.07
	14	51 Cephei	F.	. .	. .	. .	59.0	42.0	25.0	7.5	. .	. .	39 42.06	+18.44	. .	+ 1.70	6 40 2.28	— 0.27
	15	48 Geminorum . .	F.	25.2	28.0	29.6	36.3	38.6	40.8	47.5	49.0	52.0	4 38.56	— 0.26	. .	+ 1.79	7 4 40.09	— 0.49
	16	52 Geminorum . .	F.	37.6	40.4	42.0	48.9	51.3	53.5	0.2	1.9	4.6	6 51.16	— 0.25	. .	+ 1.79	7 6 52.70	— 0.46
	17	63 Geminorum . .	F.	54.3	57.0	58.7	5.2	7.5	9.7	16.2	17.7	20.6	20 7.43	— 0.31	. .	+ 1.79	7 20 8.91	— 0.49
	18	Anonymous . .	F.	37.3	41.0	43.4	52.4	55.5	58.4	7.5	9.6	13.2	25 55.37	+ 0.29	. .	+ 1.79	7 25 57.45	— 0.85
	19	Anonymous . .	F.	18.8	22.9	25.0	33.7	36.8	39.8	49.0	51.2	55.0	31 36.91	+ 0.29	. .	+ 1.80	7 31 39.00	— 0.83
	20	β Geminorum . .	F.	13.9	16.9	18.6	25.5	27.7	30.2	37.0	38.9	41.6	37 27.81	— 0.19	+ 1.76	+ 1.80	7 37 29.42	+ 0.01
	21	Jupiter I, N. . .	F.	54.7	57.4	59.0	. .	. .	. .	16.7	18.3	21.0	46 7.85	— 0.31	. .	+ 1.80	7 46 9.34	. .
	22	Jupiter II, S. . .	F.	. .	. .	6.9	9.1	11.3	13.4	15.7	. .	. .	46 11.28	— 0.31	. .	+ 1.80	7 46 12.77	. .
	23	5 Cancri	F.	58.9	1.5	3.0	9.4	11.5	13.6	20.2	21.5	24.4	54 11.56	— 0.40	. .	+ 1.81	7 54 12.97	— 0.49
	24	μ^2 Cancri	F.	59.7	2.4	4.0	10.6	12.8	14.9	21.6	23.2	25.9	0 12.79	— 0.31	. .	+ 1.81	8 0 14.29	— 0.51
	25	15 Argus	F.	. .	. .	. .	. .	. .	. .	14.5	16.3	18.9	2 5.57	— 1.06	+ 1.84	+ 1.81	8 2 6.32	— 0.09
	26	Uranus I, C. . .	F.	53.7	56.4	58.0	. .	. .	. .	15.4	17.0	19.7	2 6.70	— 0.33	. .	+ 1.81	8 6 8.18	. .
	27	Uranus II . . .	F.	. .	. .	2.7	4.9	7.0	9.2	11.3	. .	. .	6 7.02	— 0.33	. .	+ 1.81	8 6 8.50	. .
18	28	Sun N.	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	29	Sun S.	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
19	30	Venus II, S. . .	E.	17.6	20.5	22.0	28.7	30.9	33.1	39.6	41.4	44.3	6 30.90	— 0.98	. .	+ 2.33	17 6 32.25	— 0.60
	31	β Draconis . . .	E.	. .	. .	22.0	25.2	28.6	32.1	35.5	. .	. .	27 28.68	+ 0.31	. .	+ 2.33	17 27 30.32	+ 0.01
	32	a Ophiuchi . . .	E.	44.3	47.0	48.6	54.8	56.9	58.9	5.3	6.9	9.5	28 56.91	— 0.50	+ 2.36	+ 2.33	17 28 57.74	0.00
	33	μ Herculis . . .	E.	10.0	13.0	14.7	21.6	23.9	26.3	33.2	35.0	37.9	41 23.96	— 0.26	+ 2.39	+ 2.34	17 41 25.04	— 0.05
	34	γ Draconis . . .	E.	14.4	18.5	20.9	30.9	34.1	37.5	47.3	49.7	53.9	53 34.13	+ 0.30	. .	+ 2.34	17 53 35.47	— 0.49
	35	δ Ursæ Minoris. .	E.	38.0	24.0	49.5	33.0	8.0	41.5	25.0	52.0	37.0	13 7.56	. .	. .	. .	. . . .	. .
	36	Mercury II, C. .	E.	29.8	32.7	34.3	41.0	43.2	45.4	52.0	53.7	56.5	24 43.18	— 1.00	. .	+ 2.35	18 24 43.53	— 0.26
	37	a Lyræ	E.	17.0	20.3	22.3	30.0	32.8	35.4	43.3	45.4	48.5	32 32.78	— 0.06	+ 2.43	+ 2.36	18 32 34.08	— 0.05
	38	β Lyræ	E.	3.5	6.4	8.3	15.6	18.0	20.3	27.8	29.5	32.6	45 18.00	— 0.17	+ 2.32	+ 2.36	18 45 19.19	+ 0.07
	39	ζ Aquilæ	E.	16.0	18.8	20.4	26.5	28.6	30.9	37.2	38.7	41.3	59 28.71	— 0.49	+ 2.34	+ 2.36	18 59 29.58	+ 0.10
	40	δ Draconis . . .	E.	. .	. .	14.5	19.8	25.4	30.6	36.0	. .	. .	12 25.26	+ 1.12	. .	+ 2.37	19 12 27.75	+ 0.09
20	41	Sun I, N. . . .	E.	. .	. .	37.8	40.0	42.2	44.3	46.5	. .	. .	7 42.16	— 0.98	. .	+ 2.39	20 7 42.57	. .
	42	Sun II, S. . . .	E.	48.3	51.0	52.5	59.2	1.4	3.5	10.0	11.7	14.5	10 1.34	— 0.98	. .	+ 2.39	20 10 1.75	. .
	43	ζ Cygni	E.	11.9	14.9	16.7	23.7	26.1	28.5	35.5	37.3	40.2	7 26.09	— 0.23	+ 2.32	+ 2.41	21 7 27.27	+ 0.10
	44	a Cephei	E.	59.7	5.3	8.4	21.5	25.9	30.4	43.4	46.7	52.2	15 25.94	+ 0.74	. .	+ 2.41	21 15 28.09	— 0.13
21	45	Moon S.	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	46	η Herculis . . .	S.	. .	. .	20.0	22.5	25.2	26.9	30.5	. .	. .	38 25.02	+ 0.05	+ 3.84	+ 3.68	16 38 28.75	— 0.15
	47	κ Ophiuchi . . .	S.	19.5	22.1	23.6	29.9	31.8	33.9	40.2	41.7	44.3	51 31.89	— 0.53	+ 3.61	+ 3.68	16 51 35.04	+ 0.11
	48	a^1 Herculis . . .	S.	31.0	33.8	35.4	41.8	43.9	46.0	52.3	53.9	56.4	8 43.83	— 0.45	+ 3.62	+ 3.69	17 8 47.07	+ 0.09
	49	a Ophiuchi . . .	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .

1. Telescope micrometer reading diminished ten revolutions in reduction.
43. Telescope micrometer reading increased one revolution in reduction.
45. Bisections at wires III–V.

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Number.	Circle Division.	MICROSCOPE MICROMS. I.	II.	III.	IV.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	352 32	12.0	7.9	11.0	10.6	43	. .	. .	. .	216	220	53.7	7 23 21.9	. .	+ 8.1	58 29 51.2	− 0.1
2	343 50	8.4	5.5	7.9	8.2	32	. .	810	. .	814	. .	53.7	16 5 12.7	. .	+ 17.8	67 11 51.7	+ 1.4
3	342 48	4.4	0.9	2.4	3.6	42	. .	012	. .	006	. .	53.7	17 9 29.3	. .	+ 19.1	68 16 9.6	+ 1.2
4	338 2	7.4	4.3	5.8	6.8	34	. .	020	. .	016	. .	53.7	21 53 29.8	. .	+ 24.8	73 0 15.8	− 0.2
5	341 18	13.6	9.6	12.7	13.2	34	. .	060	. .	060	. .	53.7	18 37 36.6	. .	+ 20.8	69 44 18.6	+ 0.8
6	338 12	4.4	0.6	2.9	3.3	38	. .	288	. .	280	. .	53.7	21 44 32.0	. .	+ 24.6	72 51 17.8	0.0
7	339 56	9 29.1	26.0	28.7	28.0	34	. .	. .	. .	980	950	53.7	19 59 36.1	. .	+ 22.5	71 6 19.8	+ 0.8
8	337 18	5.8	2.4	5.1	4.9	37	. .	. .	. .	012	008	53.7	22 38 14.2	. .	+ 25.8	73 45 0.2	+ 1.1
9	354 32	3.8	0.0	2.4	2.4	32	. .	260	. .	232	. .	53.7	5 22 58.8	. .	+ 5.8	56 29 25.8	+ 4.3
10	339 40	9 25.2	22.3	25.4	26.2	36	. .	976	. .	988	. .	53.7	20 16 4.0	. .	+ 22.8	71 22 48.0	+ 0.5
11	344 48	8.0	5.2	7.4	7.6	38	. .	010	. .	020	. .	53.7	15 8 35.6	. .	+ 16.7	66 15 13.5	+ 1.8
12	54 24	6.6	4.1	5.8	6.3	33	395	. .	. .	. .	. .	53.7	305 31 19.6	. .	− 1 26.6	356 36 14.2	0.0
13	337 32	11.4	7.9	10.6	10.2	31	. .	. .	. .	516	518	53.7	22 22 55.3	. .	+ 25.5	73 29 42.0	+ 5.3
14	48 16	8.7	5.7	7.5	8.9	37	. .	528	532	535	535	53.7	311 20 25.4	. .	− 1 10.4	2 25 36.3	− 1.0
15	345 24	3.5	29.3	1.8	1.8	39	. .	980	. .	010	. .	53.7	14 32 57.2	. .	+ 16.1	65 39 34.5	+ 0.8
16	346 8	0.4	26.6	28.8	28.6	32	. .	920	. .	892	. .	53.7	13 47 5.3	. .	+ 15.2	64 53 41.7	+ 0.8
17	342 46	6.1	3.1	4.6	5.9	40	. .	160	. .	136	. .	53.7	17 11 2.8	. .	+ 19.2	68 17 43.2	+ 0.6
18	8 4	8.8	6.5	8.4	7.7	32	. .	698	. .	688	. .	53.7	351 51 11.4	. .	− 8.9	42 57 23.7	+ 1.7
19	8 0	5.2	2.4	4.5	4.5	34	. .	880	. .	880	. .	53.7	351 55 41.3	. .	− 8.9	43 1 53.6	+ 1.5
20	349 22	10.6	7.1	9.5	11.0	33	. .	620	. .	616	. .	53.7	10 33 27.2	. .	+ 11.6	62 40 0.0	+ 0.3
21	342 44	7.7	5.0	7.1	8.4	40	220	. .	. .	. .	020	53.7	17 13 4.7	. .	+ 19.3	68 19 45.2	
22	342 44	7.7	5.0	7.1	8.4	42	. .	884	. .	916	. .	53.7	17 13 47.2	. .	+ 19.3	68 20 27.7	
23	337 50	7.9	4.7	6.9	7.6	31	. .	418	. .	414	. .	53.7	22 4 50.6	. .	+ 25.2	73 11 37.0	− 0.1
24	343 0	5.6	2.7	4.2	5.8	37	. .	025	. .	025	. .	53.7	16 56 14.5	. .	+ 18.9	68 2 54.6	− 0.2
25	297 8	12.0	7.8	10.6	11.9	35	. .	. .	. .	090	075	53.7	62 47 50.2	. .	+ 2 0.4	113 56 12.0	+ 1.7
26	341 56	4.1	0.2	1.9	3.1	34	. .	994	. .	986	. .	53.7	17 59 41.0	. .	+ 20.2	69 6 22.4	
27																	
28	300 46	9 13.8	17.8	18.2	19.8	39	035	040	. .	. .	. .	53.5	59 10 27.5	. .	+ 1 40.9	110 18 29.6	
29	300 14	9 19.7	13.0	19.3	20.2	40	. .	. .	. .	880	900	53.5	59 42 57.0	. .	+ 1 43.1	110 51 1.3	
30	300 24	10 2.7	1.0	0.8	2.6	38	. .	145	. .	150	. .	53.0	59 32 28.0	. .	+ 1 40.1	110 40 29.3	
31	13 26	10 10.8	10.8	11.5	10.3	36	. .	710	. .	680	. .	53.0	346 30 15.3	. .	− 14.2	37 36 22.3	− 1.3
32	333 42	10 4.6	2.7	4.4	3.5	36	. .	060	. .	062	. .	53.0	26 13 58.2	. .	+ 29.1	77 20 48.5	+ 0.5
33	348 50	9 29.7	26.7	29.0	27.5	35	. .	770	. .	762	. .	53.0	11 5 48.2	. .	+ 11.6	62 12 21.0	+ 1.0
34																	
35	47 38	10 9.3	7.3	8.3	7.0	37	. .	855	. .	750	. .	53.0	312 18 29.1	. .	− 1 4.5	3 23 45.8	− 0.6
36	299 32	10 9.0	6.6	7.7	8.6	36	560	520	. .	630	630	53.0	60 24 10.1	. .	+ 1 43.1	111 32 14.4	
37	359 42	10 4.8	4.0	5.1	4.3	35	. .	545	. .	580	. .	53.0	0 13 51.4	. .	+ 0.2	51 20 12.8	+ 0.5
38	354 16	10 12.7	10.3	12.0	10.9	38	. .	640	. .	700	. .	53.0	5 40 46.1	. .	+ 5.8	56 47 13.1	+ 0.1
39	334 44	10 8.0	5.5	7.7	5.3	39	. .	220	. .	252	. .	53.0	25 12 47.8	. .	+ 27.6	76 19 36.6	− 0.2
40	28 28	10 8.8	6.5	7.2	8.3	36	. .	385	. .	400	. .	53.0	331 28 7.9	. .	− 31.8	22 33 57.3	0.0
41	301 10	10 2.5	28.8	0.6	4.7	34	210	090	. .	. .	. .	53.0	58 45 26.2	. .	+ 1 35.7	109 53 23.1	
42	300 38	9 25.5	20.5	21 4	24.2	36	. .	. .	. .	630	595	53.0	59 17 55.7	. .	+ 1 37.7	110 25 54.6	
43	350 44	10 13.8	11.1	13.7	15.2	32	. .	292	. .	310	. .	53.0	9 11 25.5	. .	+ 9.4	60 17 56.1	+ 2.2
44	23 4	10 1.5	1.5	3.5	4.1	34	. .	110	. .	162	. .	53.0	336 51 28.0	. .	− 24.9	27 57 24.3	0.0
45	343 54	3.7	1.1	2.2	2.5	42	580	. .	500	. .	396	52.7	16 3 35.2	. .	+ 17.5	67 10 13.9	
46	0 12	4.3	1.9	3.1	4.0	35	. .	. .	. .	515	585	52.0	359 43 49.1	. .	− 0.3	50 50 10.0	− 0.2
47	330 38	1.6	1.7	0.3	1.7	38	790	790	. .	760	760	52.0	29 18 36.4	. .	+ 34.4	80 25 32.0	− 0.1
48	335 34	13.4	10.4	12.6	13.8	31	. .	. .	. .	776	780	52.0	24 21 0.1	. .	+ 27.7	75 27 49.0	− 0.9
49	333 42	9.1	5.4	7.0	8.2	35	. .	. .	. .	814	790	52.0	26 13 56.8	. .	+ 30.0	77 20 48.0	− 0.4

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
3	30.262	64.2	25.2
11	30.260	64.0	24.0
14	30.266	65.0	23.0
26	30.264	65.5	22.0
30	29.850	63.5	40.0
41	. .	. .	47.5
45	30.116	69.5	30.8
46	30.065	58.0	25.0
48	. .	. .	27.5
49	30.094	60.0	29.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ″
21	− 0.6	+ 21.2	. .	+ 20.6
22	− 0.6	− 21.2	. .	− 21.8
26	− 0.2	. .	. .	− 0.2
28	− 7.6	+ 16 15.8	. .	+ 16 8.2
29	− 7.7	− 16 15.8	. .	− 16 23.5
30	− 7.6	− 8.5	. .	− 16.1
36	− 8.4	0.0	0.0	− 8.4
41	− 7.6	+ 16 15.7	. .	+ 16 8.1
42	− 7.7	− 16 15.7	. .	− 16 23.4
45	−14 45.8	− 14 45.3	. .	− 29 31.1

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Jan. 21	1	γ Draconis	S.	12.2	16.3	18.8	28.6	32.0	35.1	45.0	47.5	51.5	53 31.89	+ 0.45	. .	+ 3.70	17 53 36.04	— 0.03
	2	δ Ursæ Minoris	S.	. .	. .	53.0	. .	3.0	. .	13.5	. .	. .	13 3.17	+14.10	. .	+ 3.71	18 13 20.98	— 1.25
22	3	Sun I, S.	S.	. .	. .	2.4	. .	6.8	. .	11.2	. .	. .	16 6.80	— 1.02	. .	+ 3.75	20 16 9.53	. .
	4	Sun II, N.	S.	12.4	15.3	16.9	21.3	25.6	30.2	34.3	36.0	38.6	18 25.62	— 1.02	. .	+ 3.75	20 18 28.35	. .
	5	τ^1 Arietis	S.	33.3	36.0	37.8	42.2	46.4	50.9	55.2	56.9	59.6	13 46.48	— 0.35	. .	+ 3.89	3 13 50.02	+ 0.44
	6	f Tauri	S.	32.3	34.8	36.4	42.7	44.8	46.9	53.2	54.8	57.5	23 44.82	— 0.49	. .	+ 3.89	3 23 48.22	+ 0.36
	7	9 Tauri	S.	. .	. .	18.4	20.5	22.8	25.0	27.2	. .	. .	29 22.78	— 0.32	. .	+ 3.90	3 29 26.36	+ 0.36
	8	13 Tauri	S.	39.3	42.0	43.5	50.3	52.4	54.6	1.0	2.8	5.4	34 52.37	— 0.38	. .	+ 3.90	3 34 55.89	+ 0.33
	9	η Tauri	S.	35.4	38.3	39.9	46.6	48.9	51.1	57.8	59.5	2.3	39 48.87	— 0.30	+ 3.82	+ 3.90	3 39 52.47	+ 0.08
	10	h Pleiadum	S.	. .	. .	28.2	30.3	32.9	35.1	39.6	41.3	44.0	41 30.56	— 0.30	. .	+ 3.90	3 41 34.16	+ 0.30
	11	33 Tauri	S.	11.4	14.3	16.0	22.6	25.0	27.1	33.7	35.4	38.0	49 24.83	— 0.32	. .	+ 3.90	3 49 28.41	+ 0.26
	12	A[1] Tauri	S.	50.9	53.6	. .	4.1	6.3	8.5	13.0	14.5	17.4	57 4.10	— 0.33	. .	+ 3.90	3 57 7.67	+ 0.21
	13	B. A. C. 1272	S.	23.3	26.0	27.6	34.0	36.1	38.3	44.7	46.3	48.9	0 36.13	— 0.42	. .	+ 3.90	4 0 39.61	+ 0.18
	14	48 Tauri	S.	14.2	16.9	18.4	24.8	27.0	29.0	35.3	36.9	39.4	8 26.88	— 0.45	. .	+ 3.90	4 8 30.33	+ 0.14
	15	δ^1 Tauri	S.	. .	. .	25.5	27.5	29.7	31.8	34.0	. .	. .	15 29.70	— 0.42	. .	+ 3.91	4 15 33.19	+ 0.11
	16	ε Tauri	S.	52.3	55.0	56.5	2.9	5.0	7.2	13.7	15.3	18.1	21 5.11	— 0.39	+ 3.83	+ 3.91	4 21 8.63	+ 0.07
	17	a Tauri	S.	18.4	21.0	22.5	29.1	31.1	33.2	39.6	41.2	44.0	28 31.12	— 0.43	+ 3.91	+ 3.91	4 28 34.60	— 0.02
	18	τ Tauri	S.	17.0	19.8	21.4	28.1	30.3	32.5	39.3	40.9	43.6	34 30.32	— 0.32	. .	+ 3.91	4 34 33.91	+ 0.10
	19	i Tauri	S.	36.8	39.6	41.2	47.7	49.9	52.0	58.5	0.0	2.9	43 49.84	— 0.39	. .	+ 3.92	4 43 53.37	— 0.02
	20	99 Tauri	S.	. .	. .	54.8	57.0	59.2	1.7	3.8	. .	. .	49 59.30	— 0.30	. .	+ 3.92	4 50 2.92	— 0.05
	21	11 Orionis	S.	59.2	2.0	3.5	10.0	12.0	14.1	20.4	22.0	24.7	57 11.99	— 0.45	+ 3.90	+ 3.92	4 57 15.46	— 0.05
	22	δ Ursæ Minoris, S. P.	S.	. .	. .	41.5	6.0	33.5	. .	. .	. .	. .	13 32.53	—15.36	. .	+ 3.94	6 13 21.11	— 0.17
	23	ι Libræ	S.	38.3	41.0	42.5	49.1	51.3	53.5	0.0	1.6	4.4	4 51.30	— 1.01	. .	+ 4.14	15 4 54.43	+ 1.26
	24	β Libræ	S.	50.3	52.9	54.5	0.6	2.8	4.9	10.8	12.6	15.2	10 2.73	— 0.83	+ 4.16	+ 4.14	15 10 6.04	— 0.02
	25	ω^2 Libræ	S.	36.3	39.0	40.5	47.0	49.0	51.0	57.6	59.0	1.8	15 49.02	— 0.93	. .	+ 4.14	15 15 52.23	+ 1.28
	26	ζ^1 Libræ	S.	45.2	47.8	49.5	55.8	57.9	0.0	6.4	8.0	10.6	20 57.91	— 0.96	. .	+ 4.14	15 21 1.09	+ 1.33
	27	γ Libræ	S.	. .	. .	15.2	17.4	19.6	21.8	25.9	27.5	30.2	28 17.47	— 0.92	. .	+ 4.14	15 28 20.69	+ 1.35
	28	κ Libræ	S.	. .	. .	27.6	29.9	32.2	34.4	38.6	40.1	42.9	34 29.92	— 1.01	. .	+ 4.15	15 34 33.06	+ 1.43
	29	θ Libræ	S.	15.0	17.6	19.2	25.5	27.6	29.8	36.2	37.7	40.5	46 27.68	— 0.96	. .	+ 4.15	15 46 30.87	+ 1.47
	30	δ Scorpii	S.	28.1	30.9	32.6	39.2	41.3	43.6	50.1	51.8	54.6	52 41.36	— 1.06	+ 4.20	+ 4.16	15 52 44.46	— 0.03
	31	β^1 Scorpii	S.	42.2	44.9	46.6	53.0	55.2	57.3	3.8	5.3	8.0	57 55.14	— 1.02	+ 4.12	+ 4.16	15 57 58.28	+ 0.07
	32	a Scorpii	S.	15.4	18.2	19.9	26.5	28.9	31.2	38.0	39.6	42.3	21 28.89	— 1.14	+ 4.20	+ 4.16	16 21 31.91	— 0.05
24	33	a^2 Geminorum	E.	7.4	10.4	12.0	19.4	21.8	24.2	31.5	33.3	36.3	26 21.81	+ 0.08	+ 4.50	+ 4.56	7 26 26.45	+ 0.30
	34	a Canis Minoris	E.	19.9	22.7	24.2	30.2	32.3	34.4	40.4	41.9	44.6	32 32.29	— 0.42	+ 4.63	+ 4.56	7 32 36.43	— 0.23
	35	β Geminorum	E.	11.0	13.9	15.6	22.6	24.9	27.2	34.1	36.0	38.7	37 24.89	0.00	+ 4.55	+ 4.56	7 37 29.45	— 0.03
	36	Jupiter I, S.	E.	57.4	0.0	1.6	. .	. .	. .	19.4	20.9	23.6	42 10.48	— 0.13	. .	+ 4.56	7 42 14.91	. .
	37	Jupiter II, N.	E.	. .	. .	9.4	11.6	13.9	16.2	18.4	. .	. .	42 13.90	— 0.13	. .	+ 4.56	7 42 18.33	. .
	38	λ Ursæ Minoris, S. P.	E.	. .	. .	47.0	55.5	6.0	17.0	30.0	. .	. .	52 7.10	. .	. .	. .	. . . .	. .
	39	Uranus C.	E.	34.3	37.0	38.6	45.1	47.4	49.6	56.3	57.9	0.9	4 47.46	— 0.15	. .	+ 4.57	8 4 51.88	. .
	40	Moon I, N.	E.	. .	. .	9.0	11.4	13.7	15.9	18.3	. .	. .	6 13.66	— 0.10	. .	+ 4.57	8 6 18.13	+66.96
	41	ε Hydræ	E.	43.7	46.4	47.9	54.1	56.2	58.3	4.4	6.0	8.5	39 56.17	— 0.40	+ 4.57	+ 4.56	8 40 0.33	— 0.05
	42	Venus II, S.	F.	27.8	30.6	32.2	38.6	40.9	43.1	49.7	51.3	54.0	31 40.91	— 1.09	. .	+ 4.70	17 31 44.52	— 0.59
	43	Venus N.	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	44	μ Herculis	F.	6.8	9.6	11.3	18.1	20.6	22.8	29.9	31.5	34.4	41 20.56	— 0.10	+ 4.75	+ 4.70	17 41 25.16	— 0.05
	45	γ Draconis	F.	. .	. .	24.2	27.3	30.5	33.9	37.1	. .	. .	53 30.60	+ 0.69	. .	+ 4.70	17 53 35.79	— 0.30
	46	δ Ursæ Minoris	F.	. .	. .	52.0	26.0	0.5	34.0	9.0	. .	. .	13 0.30	+17.55	. .	+ 4.71	18 13 22.56	— 0.01
	47	a Lyræ	F.	13.5	17.0	18.8	26.8	29.2	32.0	39.8	41.7	45.0	32 29.31	+ 0.20	+ 4.74	+ 4.71	18 32 34.22	— 1.01
	48	Mercury II, C.	F.	45.4	48.1	49.9	56.6	58.8	1.1	7.5	9.3	12.0	44 58.74	— 1.11	. .	+ 4.71	18 45 2.34	— 0.24

7, 20. Bisections at wires D_3 and VI.
10. Telescope micrometer reading increased one revolution in reduction.
40. Bisections at wires B_3, IV, and D_1.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	12 32	2.7	0.8	0.9	1.8	35	. .	460	. .	440	. .	52.0	347 23 45.8	. .	— 13.6	38 29 53.4	— 1.6
2																	
3	301 4	2.5	26.8	0.3	2.1	33	375	390	. .	. .	. .	52.0	58 51 12.1	. .	+ 1 37.5	109 59 10.8	
4	301 36	4.0	27.8	29.1	4.4	31	. .	. .	. .	323	327	52.0	58 18 41.9	. .	+ 1 35.7	109 26 38.8	
5	341 44	4.0	1.0	2.0	4.8	37	. .	390	. .	420	. .	53.5	18 12 17.8	. .	+ 19.8	69 18 58.8	+ 0.4
6	333 32	0.7	27.8	29.5	28.3	34	200	220	. .	245	215	53.5	26 23 25.7	. .	+ 29.8	77 30 16.7	— 2.2
7	343 50	4.6	1.9	2.6	2.9	36	. .	. .	. .	995	015	53.5	16 6 12.4	. .	+ 17.4	67 12 51.0	+ 1.3
8	340 20	1.4	29.0	29.6	29.5	36	390	. .	. .	. .	430	53.5	19 36 0.3	. .	+ 21.4	70 42 42.9	+ 0.3
9																	
10	344 48	3.5	1.0	1.4	1.5	38	. .	. .	. .	. .	350	53.5	15 8 47.4	. .	+ 16.2	66 15 24.8	+ 1.7
11	343 50	11.3	8.8	9.7	10.1	32	. .	770	. .	770	. .	53.5	16 5 14.4	. .	+ 17.3	67 11 52.9	+ 1.4
12																	
13	338 2	1.3	29.8	0.7	0.7	34	. .	470	. .	500	. .	53.5	21 53 31.3	. .	+ 24.1	73 0 16.6	— 0.2
14	336 8	8.6	5.1	3.8	6.4	37	990	020	. .	. .	. .	53.5	23 48 30.9	. .	+ 26.5	74 55 18.6	— 0.8
15	338 18	11.5	7.7	8.9	9.7	38	. .	140	. .	130	. .	53.5	21 38 57.6	. .	+ 23.9	72 45 36.7	— 0.1
16	339 56	15.2	12.2	14.8	14.3	34	. .	050	. .	050	. .	53.5	19 59 38.1	. .	+ 21.8	71 6 21.1	+ 2.1
17	337 18	6.3	4.0	4.7	5.8	37	. .	060	. .	076	. .	53.5	22 38 15.6	. .	+ 25.1	73 45 1.9	+ 1.7
18	343 46	14.3	11.8	13.2	12.7	38	. .	620	. .	640	. .	53.5	16 10 47.4	. .	+ 17.4	67 17 26.0	+ 1.6
19																	
20	344 48	7.5	4.6	5.0	5.8	38	. .	. .	. .	250	220	53.5	15 8 34.0	. .	+ 16.3	66 15 11.5	+ 2.0
21																	
22																	
23	301 46	7.8	4.0	5.3	6.4	37	. .	295	. .	330	. .	53.2	58 10 19.5	. .	+ 1 36.0	109 18 16.7	+ 4.6
24																	
25	306 22	6.2	3.0	3.4	4.5	31	. .	. .	. .	375	437	53.2	53 32 47.1	. .	+ 1 20.8	104 40 29.1	+ 2.7
26	304 48	3.0	29.8	0.2	0.8	37	. .	374	. .	390	. .	53.2	55 8 15.6	. .	+ 1 25.7	106 16 2.5	+ 3.0
27	306 42	12.5	8.7	10.1	11.7	35	. .	. .	. .	515	490	53.2	53 13 56.4	. .	+ 1 20.0	104 21 37.6	+ 2.2
28																	
29																	
30	298 48	3.4	0.3	1.7	2.8	32	. .	778	. .	788	. .	53.2	61 7 6.0	. .	+ 1 47.6	112 15 14.8	+ 1.8
31	301 36	10.5	6.0	7.4	8.5	32	. .	615	. .	510	. .	53.2	58 19 8.7	. .	+ 1 36.7	109 27 6.6	— 0.8
32	294 56	7.2	4.8	5.4	6.6	36	760	770	. .	820	886	53.2	65 0 11.7	. .	+ 2 7.6	116 8 40.5	+ 1.0
33	353 12	7.2	6.1	6.7	5.7	34	. .	058	. .	032	. .	53.7	6 43 30.6	. .	+ 7.4	54 49 59.2	+ 0.8
34	326 36	5.2	2.7	5.4	5.8	35	. .	772	. .	753	. .	53.7	33 19 55.2	. .	+ 41.1	84 26 57.5	+ 0.2
35	349 22	6.0	2.8	5.6	4.5	33	. .	853	. .	875	. .	53.7	10 33 26.1	. .	+ 11.6	61 39 58.9	— 0.4
36	342 52	2.8	0.7	1.5	1.3	33	435	. .	. .	. .	540	53.7	17 3 17.3	. .	+ 18.7	68 9 57.2	
37	342 52	2.8	0.7	1.5	1.3	30	. .	410	. .	430	. .	53.7	17 2 30.1	. .	+ 18.7	68 9 10.0	
38	52 6	14.7	11.1	12.8	14.4	36	685	. .	655	. .	590	53.7	307 50 17.1	. .	— 1 20.3	358 55 18.0	+ 0.2
39	342 0	9 19.0	15.6	20.0	19.2	36	. .	590	. .	640	. .	53.7	17 55 52.1	. .	+ 20.2	69 2 33.5	
40	344 30	10 13.5	9.8	11.7	12.4	30	. .	000	010	070	. .	53.7	15 24 34.3	. .	+ 17.2	66 31 12.7	
41	327 56	1.0	27.7	0.0	29.7	35	. .	660	. .	718	. .	53.7	31 59 48.9	. .	+ 39.0	83 6 49.1	+ 2.0
42	299 44	4.8	0.6	2.6	5.0	33	118	. .	. .	. .	968	53.6	60 11 11.5	. .	+ 1 47.9	111 19 20.6	
43	299 44	4.8	0.6	2.6	5.0	22	. .	076	. .	008	. .	53.6	60 10 56.3	. .	+ 1 47.9	111 19 5.4	
44	348 50	6.0	1.0	3.8	5.2	35	258	264	. .	280	284	53.6	11 5 47.0	. .	+ 12.2	62 12 20.4	+ 0.2
45	12 32	5.7	2.0	3.1	4.8	35	. .	318	. .	330	. .	53.6	347 23 47.9	. .	— 13.9	38 29 55.2	— 0.8
46																	
47	359 42	8.1	4.2	6.9	7.6	35	. .	486	. .	492	. .	53.6	0 13 53.0	. .	+ 0.2	51 20 14.4	+ 0.6
48	298 58	9 29.4	24.8	27.2	29.8	33	. .	546	. .	540	. .	53.6	60 57 13.9	. .	+ 1 50.4	112 5 25.5	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	. .	. .	31.0
4	. .	. .	38.5
5	29.850		
6	. .	. .	31.0
11	. .	. .	32.5
14	29.840	69.0	
15	. .	. .	31.5
17	. .	. .	31.0
19	29.840	69.0	31.0
20	. .	. .	31.0
24	. .	. .	31.0
25	29.696	69.0	
29	29.680	65.0	30.3
30	. .	. .	30.5
32	29.688	63.0	31.5
40	30.254	68.0	19.0
44	30.136	61.5	20.8

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
3	— 7.6	— 16 16.0	. .	— 16 23.6
4	— 7.6	+ 16 16.0	. .	+ 16 8.4
36	— 0.6	— 23.6	. .	— 24.2
37	— 0.6	+ 23.6	. .	+ 23.0
39	— 0.2	. .	. .	— 0.2
40	—14 13.4	+ 14 48.4	. .	+ 35.0
42	— 7.3	— 7.6	. .	— 14.9
43	— 7.3	+ 7.6	. .	+ 0.3
48	— 7.6	. .	+ 0.1	— 7.5

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us corrections.
1872.													m. s.	's	s.	s.	h. m. s.	s.
Jan. 24	1	α Aquilæ . . .	F.	13.8	16.5	17.8	23.9	26.2	28.3	34.4	35.8	38.4	44 26.12	— 0.50	+ 4.62	+ 4.72	19 44 30.34	+ 0.14
25	2	Sun I, N. . . .	F.	27.7	30.5	32.0	38.3	40.8	42.8	49.2	51.0	53.7	28 40.67	— 1.04	. .	+ 4.72	20 28 44.35	. .
	3	Sun II, S. . . .	F.	45.9	48.5	50.1	56.9	58.9	1.0	7.5	9.0	12.0	30 58.87	— 1.04	. .	+ 4.72	20 31 2.55	. .
	4	Anonymous . .	F.	. .	. .	49.1	52.3	55.3	58.2	4.1	6.1	10.2	25 52.15	+ 0.51	. .	+ 4.83	7 25 57.49	— 0.88
	5	Anonymous . .	F.	15.7	19.3	21.6	30.6	33.5	36.7	45.6	48.0	51.6	31 33.62	+ 0.51	. .	+ 4.81	7 31 38.94	— 0.89
	6	β Geminorum . .	F.	10.8	13.8	15.5	22.4	24.8	27.0	33.9	35.7	38.6	37 24.72	— 0.07	+ 4.80	+ 4.81	7 37 29.46	— 0.02
	7	ϕ Geminorum . .	F.	21.6	24.6	26.2	33.2	35.6	37.8	44.9	46.5	49.4	45 35 54	— 0.10	+ 4.81	+ 4.81	7 45 40.25	— 0.08
	8	λ Ursæ Minoris, S. P.	F.	. .	. .	51.0	1.0	12.0	24.0	. .	. .	. .	52 12.75	−58.54	. .	+ 4.81	19 51 19.02	— 0.70
	9	Uranus I, C. . .	F.	23.0	25.9	27.5	. .	. .	. .	45.1	46.7	49.4	4 36.27	— 0.24	. .	+ 4.81	8 4 40.84	. .
	10	Uranus II . . .	F.	. .	. .	32.3	34.4	36.7	38.8	41.0	. .	. .	4 36.64	— 0.24	. .	+ 4.81	8 4 41.21	. .
	11	ε Hydræ	F.	43.7	46.3	47.8	54.0	56.1	58.1	4.2	5.8	8.3	39 56.03	— 0.52	+ 4.84	+ 4.81	8 40 0.32	— 0.07
	12	Moon II . . .	F.	1.6	4.5	6.0	12.7	15.0	17.3	23.8	25.6	28.3	1 14.98	— 0.24	. .	+ 4.81	9 1 19.55	−66.11
	13	τ Herculis . . .	S.	29.1	32.8	35.0	44.0	46.9	49.9	58.7	0.9	4.8	15 46.90	+ 0.45	. .	+ 4.98	16 15 52.33	+ 0.17
	14	B. A. C. 5525 . .	S.	3.7	26.6	28.2	34.9	37.0	39.2	45.6	47.4	50.2	24 36.98	— 0.28	. .	+ 4.98	16 24 41.68	+ 1.35
	15	η Herculis . . .	S.	28.1	11.3	13.3	18.6	23.8	29.1	34.5	36.4	39.7	38 23.87	+ 0.17	+ 5.00	+ 4.98	16 38 29.02	— 0.01
	16	γ Draconis . . .	S.	10.6	14.8	17.4	27.2	30.4	33.6	43.6	46.0	50.1	53 30.41	+ 0.67	. .	+ 4.99	17 53 36.07	— 0.05
	17	δ Ursæ Minoris . .	S.	30.0	14.0	39.0	23.5	. .	33.5	17.0	42.0	25.0	12 58.00	+18.12	. .	+ 4.99	18 13 21.11	— 1.61
	18	α Lyræ	S.	13.3	16.8	18.7	26.6	29.0	31.8	39.6	41.5	44.7	32 29.11	+ 0.16	+ 5.00	+ 4.99	18 32 34.26	+ 0.01
	19	Mercury, C. . .	S.	28.0	30.6	32.0	38.8	41.0	43.2	50.0	51.8	54.4	49 41.09	— 1.19	. .	+ 4.99	18 49 44.89	— 0.08
	20	ζ Aquilæ	S.	12.7	15.3	16.9	23.2	25.2	27.3	33.6	35.3	37.9	59 25.27	— 0.46	+ 4.85	+ 4.99	18 59 29.80	+ 0.22
	21	δ Draconis . . .	S.	. .	. .	10.2	15.7	20.8	26.2	31.5	. .	. .	12 20.88	+ 1.97	. .	+ 5.00	19 12 27.85	+ 0.09
26	22	Sun I, S. . . .	S.	37.6	40.3	41.8	48.2	50.4	52.7	59.1	0.9	3.5	32 50.50	— 1.11	. .	+ 5.01	20 32 54.40	. .
	23	Sun II, N. . . .	S.	55.4	58.2	59.5	6.2	8.3	10.5	17.0	18.5	21.3	35 8.32	— 1.11	. .	+ 5.01	20 35 12.22	. .
	24	ω Piscium . . .	S.	26.2	28.6	30.2	36.4	38.4	40.5	46.6	48.3	50.8	52 38.44	— 0.61	+ 5.02	+ 5.01	23 52 42.84	0.00
	25	α Andromedæ . .	S.	26.0	28.9	30.8	37.6	40.0	42.2	49.2	51.0	54.0	1 39.97	— 0.13	+ 5.02	+ 5.01	0 1 44.85	+ 0.01
	26	γ Pegasi	S.	19.8	22.7	24.4	30.6	32.8	34.9	41.2	42.7	45.5	6 32.73	— 0.45	+ 5.01	+ 5.02	0 6 37.30	+ 0.01
	27	δ Andromedæ . .	S.	8.6	11.6	13.3	20.5	22.9	25.3	32.2	34.0	37.0	32 22.82	— 0.80	. .	+ 5.02	0 32 27.76	+ 1.48
	28	δ Piscium . . .	S.	44.6	47.2	48.7	54.9	56.9	59.0	5.0	6.5	9.3	41 56.90	— 0.65	. .	+ 5.02	0 42 1.32	+ 1.29
	29	ε Piscium . . .	S.	0.1	2.6	4.3	10.4	12.5	14.5	20.6	22.2	24.7	56 12.43	— 0.59	+ 5.06	+ 5.03	0 56 16.87	— 0.01
	30	Polaris	S.	. .	1.0	52.5	18.0	45.0	10.0	34.0	. .	. .	10 43.83	+46.95	. .	+ 5.03	1 10 35.81	+ 2.05
	31	π Piscium . . .	S.	0.7	3.4	5.0	11.3	13.3	15.5	21.6	23.3	25.8	30 13.32	— 0.51	. .	+ 5.04	1 30 17.85	+ 0.99
	32	ν Piscium . . .	S.	28.6	31.2	32.9	39.0	41.0	43.0	49.0	50.7	53.2	34 40.96	— 0.64	. .	+ 5.04	1 34 45.36	+ 1.00
	33	o Piscium . . .	S.	20.5	23.0	24.6	30.7	32.8	34.9	41.0	42.6	45.1	38 32.80	— 0.57	+ 4.99	+ 5.04	1 38 37.27	+ 0.02
	34	ε Leonis	S.	17.0	20.0	21.6	28.2	30.6	32.8	39.6	41.3	44.1	38 30.58	— 0.16	+ 5.07	+ 5.16	9 38 35.58	+ 0.03
	35	Moon II . . .	S.	19.0	21.5	23.0	29.6	31.8	34.0	40.5	42.2	44.9	52 31.83	— 0.32	. .	+ 5.17	9 52 36.68	−65.07
	36	γ^1 Leonis	S.	37.3	39.9	41.7	. .	. .	. .	59.0	0.8	3.4	12 50.35	— 0.26	+ 5.14	+ 5.17	10 12 55.26	+ 0.01
	37	γ^2 Leonis	S.	. .	. .	46.2	48.6	50.7	52.8	55.1	. .	. .	12 50.68	— 0.26	. .	+ 5.17	10 12 55.59	+ 0.34
	38	45 Leonis	S.	36.6	39.2	40.8	47.0	49.1	51.2	57.2	58.9	1.5	20 49.06	— 0.47	. .	+ 5.17	10 20 53.76	— 0.36
	39	49 Leonis	S.	2.6	5.2	6.6	13.0	15.0	17.0	23.2	24.8	27.4	28 14.98	— 0.49	. .	+ 5.18	10 28 19.67	— 0.39
	40	37 Sextantis . . .	S.	9.2	11.6	13.2	19.5	21.7	23.7	29.7	31.5	33.8	39 21.54	— 0 54	. .	+ 5.18	10 39 26.18	— 0.35
	41	55 Leonis	S.	50.8	53.4	54.9	1.0	3.1	5.1	11.1	12.8	15.3	49 3.06	— 0.65	. .	+ 5.18	10 49 7.59	— 0.31
	42	ρ^2 Leonis	S.	46.8	49.5	51.0	57.2	59.3	1.4	7.5	9.1	11.6	56 59.27	— 0.67	. .	+ 5.18	10 57 3.78	— 0.28
	43	δ Leonis	S.	0.0	2.8	4.5	11.0	13.2	15.4	22.0	23.7	26.6	7 13.24	— 0.24	+ 5.22	+ 5.19	11 7 18.19	— 0.09
	44	σ Leonis	S.	15.3	18.0	19.5	25.7	27.7	29.7	35.8	37.4	39.8	14 27.66	— 0.54	. .	+ 5.19	11 14 32.31	— 0.23
	45	θ Virginis . . .	S.	2.4	5.0	6.5	12.6	14.6	16.6	22.9	24.4	27.1	3 14.68	— 0.78	+ 5.21	+ 5.24	13 3 19.14	— 0.01
28	46	γ Aquilæ . . .	F.	50.4	53.0	54.4	0.7	2.8	4.9	11.0	12.6	15.2	40 2.78	. .	. .	. .	. . . .	. .
	47	α Aquilæ . . .	F.	12.2	14.9	16.3	22.5	24.6	26.7	32.8	34.4	37.0	44 24.60	. .	. .	. .	. . . .	. .

21. Bisections at wires B_3 and D_1.
30. Transits observed over wires B_3 and set C.
46. Telescope micrometer diminished one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	329 34	4.5	0.2	3.0	4.6	33	. .	280	. .	300	. .	53.6	30 21 15.4	. .	+ 35.8	81 28 12.4	— 0.3
2	302 20	25.5	21.2	21.7	24.8	36	874	896	. .	. .	. .	53.6	57 36 0.4	. .	+ 1 35.9	108 43 57.5	
3	301 48	26.7	. .	24.6	. .	38	. .	. .	. .	700	742	53.6	58 8 31.5	. .	+ 1 37.9	109 16 30.6	
4	8 4	3.7	0.1	2.4	2.2	32	. .	966	. .	960	. .	54.8	351 51 10.9	. .	— 8.9	42 57 23.2	+ 3.0
5	8 0	7.7	3.5	6.2	6.1	34	. .	608	. .	606	. .	54.8	351 55 39.9	. .	— 8.8	43 1 52.3	+ 2.7
6	349 22	7.3	3.2	6.2	6.7	33	. .	860	. .	866	. .	54.8	10 33 28.3	. .	+ 11.5	61 40 1.0	+ 1.7
7																	
8																	
9	342 0	8.0	3.7	6.0	7.7	33	. .	290	. .	284	. .	54.8	17 55 19.9	. .	+ 20.0	69 2 1.1	
10																	
11	327 56	4.2	29.3	1.8	4.0	35	. .	460	. .	450	. .	54.8	31 59 49.1	. .	+ 38.7	83 6 49.0	+ 1.8
12																	
13																	
14																	
15																	
16	12 32	28.7	24.6	25.3	27.3	35	. .	770	. .	790	. .	53.8	347 23 47.6	. .	— 13.7	38 29 55.1	— 1.1
17																	
18	359 42	8.7	3.7	6.3	8.0	35	378	372	. .	409	381	53.8	0 13 51.7	. .	+ 0.2	51 20 13.1	— 1.0
19	298 54	5.0	0.2	3.1	6.3	34	775	755	. .	676	660	53.8	61 1 37.8	. .	+ 1 49.4	112 9 48.4	
20	334 42	3.3	28.2	2.7	4.0	31	630	655	. .	625	565	53.8	25 12 49.0	. .	+ 28.6	76 19 38.8	+ 0.8
21	28 28	1.8	27.9	28.7	1.0	37	. .	090	. .	060	. .	53.8	331 28 10.5	. .	— 33.0	22 33 58.7	— 0.7
22	302 2	0.3	23.5	29.5	29.0	35	005	120	. .	. .	. .	53.8	57 53 37.3	. .	+ 1 35.5	109 1 34.0	
23	302 34	10 11.1	6.8	11.0	12.2	32	. .	. .	. .	065	037	53.8	57 21 3.8	. .	+ 1 33.6	108 28 58.6	
24	327 12	10.6	6.4	9.5	9.5	35	. .	365	. .	355	. .	53.8	32 43 53.3	. .	+ 38.2	83 50 52.7	+ 2.3
25	349 26	3.6	29.8	2.9	2.3	38	. .	087	. .	097	. .	53.8	10 30 28.5	. .	+ 11.0	61 37 0.7	+ 1.5
26	335 30	5.7	2.1	5.4	4.1	32	. .	. .	. .	. .	132	53.8	24 24 59.1	. .	+ 27.0	75 31 47.3	+ 1.5
27																	
28	327 56	7.4	2.9	6.3	5.7	35	. .	490	. .	500	. .	53.8	31 59 51.9	. .	+ 37.4	83 6 50.5	— 7.0
29	328 14	8.5	4.2	7.1	5.6	32	. .	510	. .	530	. .	53.8	31 41 7.0	. .	+ 37.1	82 48 5.3	+ 0.6
30	49 38	29.2	26.8	28.5	28.3	32	365	375	390	415	405	53.8	310 16 57.0	. .	— 1 11.1	1 22 7.1	— 1.3
31																	
32	325 54	11.4	7.9	10.7	10.3	38	565	535	. .	. .	. .	53.8	34 2 43.5	. .	+ 40.7	85 9 45.4	— 6.9
33	329 34	4.4	1.2	3.6	3.1	37	. .	670	. .	700	. .	53.8	30 22 23.1	. .	+ 35.3	81 29 19.6	— 0.4
34	345 24	4.9	1.7	3.1	3.9	34	. .	860	. .	860	800	54.2	14 31 40.2	. .	+ 16.0	65 38 17.4	+ 0.2
35																	
36																	
37																	
38	331 28	2.1	28.5	0.0	0.2	37	. .	365	. .	440	. .	54.2	28 28 16.3	. .	+ 33.5	79 35 11.0	— 1.6
39	330 22	8.2	5.0	7.7	7.2	37	. .	510	. .	630	. .	54.2	29 34 25.7	. .	+ 34.4	80 41 21.3	— 1.5
40	328 6	1.5	28.2	0.3	1.5	37	. .	074	. .	090	. .	54.2	31 50 11.6	. .	+ 38.4	82 57 11.2	— 1.2
41	322 28	0.5	26.3	28.9	0.4	35	. .	340	. .	348	. .	54.2	37 27 43.4	. .	+ 47.4	88 34 52.0	— 0.1
42	321 44	13.5	9.2	11.3	13.7	33	. .	930	. .	960	. .	54.2	38 11 34.8	. .	+ 48.7	89 8 44.7	0.0
43	342 16	5.7	2.9	4.3	5.3	35	. .	698	. .	728	. .	54.2	17 39 54.8	. .	+ 19.7	68 46 35.7	+ 0.7
44	327 46	8.3	3.8	6.0	7.7	32	. .	780	. .	820	. .	54.2	32 9 11.8	. .	+ 38.9	83 16 11.9	— 1.5
45	316 12	3.0	0.4	2.1	2.6	35	. .	922	. .	962	. .	54.2	43 43 55.6	. .	+ 59.2	94 51 16.0	— 0.5
46	331 22	9 29.5	25.5	28.6	29.5	40	. .	482	. .	496	. .	54.1	28 35 1.7	. .	+ 33.8	79 41 56.7	— 1.0
47	329 34	5.7	1.8	4.0	5.6	33	. .	120	. .	144	. .	54.1	30 21 14.7	. .	+ 36.4	81 28 12.3	— 1.0

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	. .	. .	27.0
3	30.080	65.0	28.0
7	29.980	66.0	19.0
9	29.980	66.0	19.0
16	29.952	60.0	
18	. .	. .	26.0
19	. .	. .	27.5
23	29.880	61.5	32.0
24	29.807	64.5	
25	. .	. .	35.5
27	29.800	64.5	
28	29.800	64.5	33.0
30	29.800	64.5	29.0
34	. .	. .	18.0
36	29.794	67.5	
39	. .	. .	16.5
41	. .	. .	16.0
43	. .	. .	16.0
44	29.805	67.0	
47	29.990	64.0	17.8

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
2	— 7.5	+ 16 16.5	. .	+ 16 9.0
4	— 7.6	— 16 16.5	. .	— 16 24.1
10	— 0.2	. . .	. .	— 0.2
12	— 7.4	. . .	+ 0.1	— 7.3
23	— 7.6	— 16 17.7	. .	— 16 25.3
24	— 7.5	+ 16 17.7	. .	+ 16 10.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Jan. 29	1	Sun I, N.	F.	1.0	4.2	5.6	12.2	14.4	16.4	23.0	24.9	27.4	45 14.34	. .	. .	. .	. . . .	. .
	2	Sun II, S.	F.	18.7	21.3	23.0	29.3	31.7	33.7	40.0	41.7	44.5	47 31.54	. .	. .	. .	. . . .	. .
	3	α Pegasi	F.	2.8	5.4	7.0	13.4	15.5	17.6	24.0	25.6	28.0	58 15.48	. .	. .	. .	. . . .	. .
	4	γ Draconis	S.	7.7	12.0	14.2	24.0	27.5	30.7	40.5	43.0	47.0	53 27.40	+ 0.58	. .	+ 7.06	17 53 35.04	— 1.19
	5	α Lyræ	S.	11.5	14.8	16.7	24.5	27.0	29.8	37.6	39.7	42.9	32 27.17	+ 0.08	+ 7.10	+ 7.07	18 32 34.32	— 0.01
	6	β Lyræ	S.	57.7	0.6	2.5	9.9	12.3	14.8	22.0	24.0	27.0	45 12.31	— 0.08	+ 7.11	+ 7.07	18 45 19.30	— 0.01
	7	Mercury, C.	S.	50.9	53.9	55.4	1.9	4.3	6.5	13.0	14.8	17.5	10 4.24	— 1.22	. .	+ 7.08	19 10 10.10	— 0.05
	8	γ Aquilæ	S.	49.9	52.3	53.7	58.0	. .	6.3	10.5	12.0	14.7	40 2.18	— 0.58	+ 6.90	+ 7.09	19 40 8.69	+ 0.22
30	9	Sun I, N.	S.	7.5	10.3	11.8	16.0	20.1	24.7	28.9	30.6	33.2	49 20.34	— 1.12	. .	+ 7.11	20 49 26.33	. .
	10	Sun II, S.	S.	24.3	27.0	28.6	35.0	37.2	39.4	45.9	47.5	50.1	51 37.22	— 1.12	. .	+ 7.11	20 51 43.21	. .
	11	Polaris	S.	. .	. .	38.5	5.5	32.5	56.0	22.5	. .	. .	10 30.96	. .	. .	. .	. . . .	. .
	12	η Tauri	S.	32.0	34.9	36.5	43.3	45.6	47.8	54.5	55.9	58.9	39 45.49	— 0.31	+ 7.10	+ 7.21	3 39 52.39	+ 0.09
	13	Moon II	S.	39.2	41.8	43.4	49.8	51.8	53.9	0.5	1.8	4.4	6 51.84	— 0.74	. .	+ 7.36	13 6 58.46	—64.16
	14	Polaris, S. P.	S.	. .	. .	58.0	. .	9.5	43.0	. .	. .	. .	12 8.13	. .	. .	. .	. . . .	. .
	15	α Bootis	S.	28.6	31.4	33.0	39.6	41.8	43.9	20.4	22.0	24.5	9 41.71	— 0.28	+ 7.52	+ 7.45	14 9 48.88	— 0.07
	16	ε Bootis	S.	1.9	4.8	6.7	13.5	16.0	18.1	25.0	26.7	29.5	39 15.80	— 0.09	+ 7.54	+ 7.46	14 39 23.17	— 0.10
31	17	4 Draconis	Ha.	. .	. .	40.9	50.8	1.1	10.9	20.9	. .	. .	6 0.92	— 3.84	. .	+ 7.74	12 6 14.82	+ 0.25
	18	η Virginis	Ha.	. .	. .	10.4	12.4	14.5	16.5	18.6	. .	. .	13 14.48	— 0.76	+ 7.83	+ 7.74	12 13 21.46	— 0.11
	19	β Corvi	Ha.	20.3	23.0	24.6	31.3	33.5	35.7	42.5	44.0	46.9	27 33.53	— 1.29	+ 7.75	+ 7.74	12 27 39.98	— 0.05
	20	28 Virginis	Ha.	1.4	3.9	5.5	11.7	13.7	15.8	21.9	23.5	26.0	35 13.71	— 0.91	. .	+ 7.75	12 35 20.55	— 0.31
	21	12 Canum Venat.	Ha.	38.6	42.0	44.6	52.0	54.5	57.0	5.0	7.0	10.2	49 54.48	+ 0.30	+ 7.68	+ 7.76	12 50 2.54	+ 0.08
	22	θ Virginis	Ha.	0.2	2.8	4.2	10.3	12.4	14.4	20.6	22.1	24.6	3 12.40	— 0.87	+ 7.74	+ 7.76	13 3 19.29	— 0.02
	23	Polaris, S. P.	Ha.	. .	. .	8.3	42.4	18.0	52.0	25.7	. .	. .	12 17.28	. .	. .	. .	. . . .	. .
	24	ζ Virginis	Ha.	50.8	53.4	54.8	1.0	3.0	5.0	11.3	12.8	15.3	28 3.04	— 0.76	+ 7.76	+ 7.77	13 28 10.05	+ 0.01
	25	η Ursæ Majoris	Ha.	2.1	6.2	8.3	17.9	21.0	24.9	34.0	36.2	40.4	42 21.22	+ 0.80	. .	+ 7.77	13 42 29.79	— 0.03
	26	η Bootis	Ha.	. .	. .	23.3	25.4	27.6	29.8	31.9	. .	. .	48 27.60	— 0.32	+ 7.81	+ 7.78	13 48 35.06	— 0.08
	27	Moon II	Ha.	21.4	23.9	25.5	31.9	34.0	36.1	42.6	43.9	46.8	56 34.01	— 0.96	. .	+ 7.78	13 56 40.83	—65.56
	28	γ Draconis	E.	. .	. .	. .	. .	. .	. .	41.7	44.0	48.0	53 28.60	+ 0.77	. .	+ 7.67	17 53 37.04	+ 0.75
	29	Venus II, N.	E.	14.8	17.7	19.5	26.0	28.2	30.5	36.9	38.8	41.5	7 28.21	— 1.35	. .	+ 7.67	18 7 34.53	— 0.56
	30	Venus S.	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	. .	. .	. .	. . . .	. .
	31	δ Ursæ Minoris	E.	. .	. .	. .	. .	54.0	28.5	12.5	38.5	22.0	12 54.52	+20.93	. .	+ 7.67	18 12 23.12	— 0.83
	32	α Lyræ	E.	10.7	14.0	15.7	23.5	26.2	29.0	36.9	38.7	42.0	32 26.30	+ 0.20	+ 7.90	+ 7.68	18 32 34.18	— 0.20
	33	ζ Aquilæ	E.	9.8	12.5	14.1	20.5	22.5	24.6	30.9	32.4	35.2	59 22.50	— 0.53	+ 7.80	+ 7.69	18 59 29.66	— 0.03
	34	δ Draconis	E.	45.9	52.5	56.7	12.5	18.0	23.4	39.2	43.1	49.7	12 17.89	+ 2.25	. .	+ 7.69	19 12 27.83	— 0.06
	35	Mercury, C.	E.	48.0	51.0	52.6	59.2	1.6	3.8	10.4	11.8	14.8	21 1.47	— 1.36	. .	+ 7.69	19 21 7.80	— 0.05
	36	γ Aquilæ	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	. .	. .	. .	. . . .	. .
	37	α Aquilæ	E.	10.7	13.3	15.0	21.0	23.1	25.2	31.4	33.0	35.5	44 23.13	— 0.65	+ 7.86	+ 7.70	19 44 30.18	— 0.12
Feb. 1	38	Sun I, N.	E.	17.7	20.4	22.0	28.6	30.7	32.8	39.2	40.8	43.2	57 30.60	— 1.23	. .	+ 7.72	20 57 37.09	. .
	39	Sun II, S.	E.	34.2	36.7	38.5	44.9	47.0	49.0	55.6	57.4	0.0	59 47.03	— 1.23	. .	+ 7.72	20 59 53.52	. .
	40	α Pegasi	E.	1.3	4.0	5.6	12.0	14.1	16.3	22.6	24.0	26.8	58 14.08	— 0.50	+ 7.79	+ 7.76	22 58 21.34	0.00
	41	α Andromedæ	E.	23.3	26.3	28.0	34.9	37.1	39.5	46.5	48.2	51.0	1 37.20	— 0.15	+ 7.75	+ 7.78	0 1 44.83	+ 0.05
	42	γ Pegasi	E.	17.2	20.0	21.5	27.9	30.0	32.0	38.5	40.0	42.7	6 29.98	— 0.51	+ 7.76	+ 7.78	0 6 37.25	+ 0.02
	43	β Ceti	E.	. .	. .	. .	2.0	4.1	6.2	10.6	12.4	15.0	37 2.00	— 1.24	+ 7.73	+ 7.79	0 37 8.55	+ 0.11
	44	ε Piscium	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	. .	. .	. .	. . . .	. .
	45	Polaris	E.	. .	. .	37.5	5.0	28.5	52.5	18.5	. .	. .	10 28.40	+53.33	. .	+ 7.80	1 11 29.53	+ 1.21
	46	θ^1 Ceti	E.	17.3	19.8	21.5	27.7	29.7	31.8	38.0	39.5	42.0	17 29.70	— 1.04	+ 7.79	+ 7.80	1 17 36.46	+ 0.03
	47	ε Bootis	E.	1.8	4.6	6.4	13.0	15.6	17.9	24.6	26.5	29.5	39 15.54	— 0.06	+ 7.83	+ 8.04	14 39 23.52	+ 0.19
	48	Moon II, S.	E.	40.9	43.6	45.0	51.6	53.7	55.9	2.4	4.0	6.7	48 53.76	— 1.12	. .	+ 8.05	14 49 0.69	—67.71
	49	β Bootis	E.	. .	. .	. .	. .	. .	. .	9.3	11.6	15.0	57 58.70	+ 0.37	. .	+ 8.05	14 58 7.12	+ 0.19

7. Bisections at wires B_1 and VI.
17. Bisection at wire V.
34. Telescope micrometer increased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	303 22	23.0	19.1	24.0	3.5	37	570	648	. .	. .	. .	54.1	56 34 13.6	. .	+ 1 33.1	107 42 7.9	
2	302 50	3.2	28.0	29.8	29.5	39	. .	. .	. .	206	216	54.1	57 6 44.0	. .	+ 1 35.0	108 14 40.2	
3	335 34	4.0	29.0	3.8	2.0	37	. .	300	. .	290	. .	54.1	24 22 16.6	. .	+ 27.8	75 29 5.6	+ 1.1
4	12 32	8.3	3.2	4.4	6.2	35	. .	380	. .	380	. .	54.3	347 23 51.1	. .	— 14.2	38 29 58.1	+ 0.7
5	359 42	4.2	27.3	0.9	1.9	35	. .	868	. .	900	. .	54.3	0 13 54.2	. .	+ 0.2	51 20 15.6	+ 0.3
6	354 16	6.3	1.1	3.6	5.2	39	. .	. .	. .	235	225	54.3	5 40 48.6	. .	+ 6.3	56 47 16.1	+ 0.2
7	298 46	8.3	2.2	5.7	8.2	34	. .	652	. .	596	. .	54.3	61 9 39.5	. .	+ 1 54.5	112 17 55.2	
8	331 20	2.9	28.2	1.8	3.2	32	. .	. .	. .	515	560	54.3	28 35 3.9	. .	+ 34.4	79 41 59.5	+ 1.6
		4.9	2.5	0.2	5.2												
9	303 38	24.3	16.8	20.8	23.5	37	. .	000	. .	. .	. .	54.3	56 18 1.0	. .	+ 1 33.9	107 25 56.1	
10	303 4	28.7	21.2	24.6	27.8	30	. .	. .	. .	830	720	54.3	56 50 30.2	. .	+ 1 35.9	107 58 27.3	
11	49 38	2.1	28.2	0.6	2.3	32	390	445	438	410	400	54.3	310 17 0.6	. .	— 1 13.7	1 22 8.1	— 0.6
12																	
13																	
14																	
15																	
16																	
17	39 22	25.4	22.5	24.6	24.1	40	. .	. .	. .	. .	820	55.2	320 35 4.2	. .	— 52.9	11 40 32.5	— 1.6
18	321 6	23.0	18.8	22.0	21.6	37	. .	. .	. .	260	260	55.2	38 50 6.2	. .	+ 51.8	89 57 19.2	— 0.2
19	298 22	26.6	22.9	25.5	25.3	32	. .	190	. .	290	. .	55.2	61 32 52.8	. .	+ 1 58.2	112 41 12.2	+ 0.6
20	314 16	29.2	25.6	29.4	28.1	37	. .	560	. .	555	. .	55.2	45 40 17.6	. .	+ 1 5.9	96 47 44.7	— 2.4
21	0 4	25.8	22.3	24.5	23.1	41	. .	. .	. .	495	490	55.2	359 53 14.2	. .	— 0.1	50 59 35.3	+ 0.9
22	316 12	28.5	23.7	27.2	26.5	36	. .	115	. .	140	. .	55.2	43 43 54.0	. .	+ 1 1.7	94 51 16.9	— 0.5
23	52 22	27.0	22.6	25.0	25.0	32	. .	340	385	370	. .	55.2	307 32 54.6	. .	— 1 24.0	358 37 51.8	+ 0.8
24	321 6	22.9	18.5	21.4	21.5	33	. .	885	. .	910	. .	55.2	38 49 14.3	. .	+ 52.1	89 56 27.6	+ 0.4
25	11 0	24.6	21.9	24.4	23.1	40	. .	. .	. .	425	. .	55.2	348 56 57.4	. .	— 12.7	40 3 5.9	+ 1.2
26	340 4	27.3	23.6	29.1	29.4	32	. .	. .	. .	. .	510	55.2	19 50 59.5	. .	+ 23.4	70 57 44.1	+ 1.9
27																	
28	12 32	1.7	29.6	2.7	2.4	35	. .	. .	. .	640	610	54.3	347 23 51.1	. .	— 14.2	38 29 58.1	+ 0.1
29	299 14	2.7	28.5	1.8	2.5	34	048	. .	. .	. .	075	54.3	60 41 25.9	. .	+ 1 52.7	111 49 39.8	
30	299 14	2.7	28.5	1.8	2.5	34	. .	890	. .	960	. .	54.3	60 41 39.3	. .	+ 1 52.7	111 49 53.2	
31																	
32	359 42	2.3	27.8	2.0	2.8	35	. .	872	. .	878	. .	54.3	0 13 54.2	. .	+ 0.2	51 20 15.6	— 0.2
33	334 44	4.5	27.3	4.3	3.4	39	. .	405	. .	418	. .	54.3	25 12 49.5	. .	+ 29.7	76 19 40.4	+ 1.2
34	28 28	5.5	4.1	4.2	6.5	36	. .	000	. .	940	. .	54.3	331 28 15.4	. .	— 34.2	22 34 2.4	+ 1.0
35	298 48	9 27.8	24.0	28.7	28.2	34	. .	245	. .	220	. .	54.3	61 7 24.5	. .	+ 1 53.4	112 15 39.1	
36	331 22	0.6	26.8	0.3	0.3	40	. .	502	. .	460	. .	54.3	28 35 3.0	. .	+ 34.1	79 41 58.3	+ 0.1
37	329 34	1.0	26.0	0.3	0.7	33	. .	538	. .	562	. .	54.3	30 21 16.5	. .	+ 36.6	81 28 14.3	+ 0.5
38	304 12	7.9	2.0	5.5	6.5	38	270	210	. .	. .	. .	54.3	55 44 34.1	. .	+ 1 30.7	106 52 26.0	
39	303 38	1.7	25.6	28.9	0.8	32	. .	. .	. .	775	845	54.3	56 17 5.0	. .	+ 1 32.6	107 24 58.8	
40	335 34	9 26.8	24.2	27.9	27.8	37	. .	645	. .	670	. .	54.3	24 22 16.9	. .	+ 28.0	75 29 6.1	+ 1.2
41	349 26	2 6	29.8	3.0	3.2	38	. .	030	. .	035	. .	54.3	10 30 28.2	. .	+ 11.4	61 37 0.8	+ 0.8
42	335 32	9 22.8	20.3	23.0	24.0	32	. .	782	. .	765	. .	54.3	24 23 57.6	. .	+ 28.0	75 31 46.8	+ 0.4
43	302 22	9 25.7	21.5	24.8	25.7	35	. .	. .	. .	272	275	54.3	57 33 37.7	. .	+ 1 36.4	108 41 35.3	— 1.5
44	328 14	0.0	27.5	29.5	0.0	32	. .	910	. .	888	. .	54.3	31 41 6.0	. .	+ 38.0	82 48 5.2	+ 0.1
45	49 38	5.4	3.4	5.8	5.3	32	000	. .	. .	. .	035	54.3	310 16 58.7	. .	— 1 12.5	1 22 7.4	— 1.6
46	312 12	2.5	0.0	1.9	1.8	33	. .	840	. .	850	. .	54.3	47 43 23.0	. .	+ 1 7.6	98 50 51.8	+ 0.8
47	348 40	2.2	26.3	29.5	0.3	39	. .	150	. .	160	. .	55.4	10 16 44.0	. .	+ 11.6	61 23 16.8	— 0.2
48	307 4	5.8	0.8	3.9	4.8	35	320	490	810	255	403	55.4	52 51 57.2	. .	+ 1 24.7	103 59 43.1	
49	1 56	4.3	0.3	2.7	1.7	36	. .	. .	. .	682	665	55.4	358 0 8.7	. .	— 2.2	49 6 27.7	+ 0.4

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	29.986	65.0	21.5
3	29.994	67.0	24.0
4	. .	. .	12.7
5	. .	. .	14.2
7	. .	. .	16.0
8	. .	. .	17.0
10	30.436	65.0	19.7
11	30.368	67.0	20.0
17	. .	. .	7.0
19	30.392	65.5	7.5
23	. .	. .	5.0
27	30.426	65.0	4.5
28	30.458	60.0	14.0
38	. .	. .	26.5
45	30.350	66.2	28.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
1	— 7.4	+ 16 16.1	. .	+ 16 8.7
2	— 7.5	— 16.16.1	. .	— 16 23.6
6	— 7.1	. . .	+ 0.1	— 7.0
9	— 7.5	+ 16 15.6	. .	+ 16 8.1
10	— 7.5	— 16 15.6	. .	— 16 23.1
29	— 7.0	+ 6.7	. .	— 0.3
30	— 7.0	— 6.7	. .	— 13.7
35	— 6.8	. . .	+ 0.1	— 6.7
38	— 7.4	+ 16 16.4	. .	+ 16 9.0
39	— 7.4	— 16 16.4	. .	— 16 23.8
48	—46 24.7	— 15 47.9	. .	— 62 12.6

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Feb. 1	1	β Libræ	E.	47.0	49.6	51.2	57.4	59.6	1.6	7.7	9.2	12.0	9 59.48	— 1.00	+ 7.91	+ 8.05	15 10 6.53	+ 0.14
	2	μ Bootis	E.	. .	. .	25.0	27.8	30.4	33.0	35.6	. .	. .	19 30.36	+ 0.24	+ 8.04	+ 8.06	15 19 38.66	+ 0.01
	3	α Coronæ Borealis	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	4	α Aquilæ	F.	10.5	13.0	14.5	20.8	22.8	24.9	31.2	32.7	35.2	44 22.84	— 0.82	+ 8.34	. .	. . . .	. .
2	5	Sun I, N.	F.	22.2	24.8	26.3	32.6	34.8	37.0	43.6	45.0	47.8	1 34.90	— 1.37	. .	+ 8.36	21 1 41.89	. .
	6	Sun II, S.	F.	38.0	40.9	42.7	48.9	50.8	53.2	59.4	1.3	4.0	3 51.02	— 1.37	. .	+ 8.36	21 3 58.01	. .
3	7	Moon II	S.	20.2	23.0	24.7	31.5	34.0	36.2	42.8	44.7	47.6	45 33.86	— 1.54	. .	+ 8.73	16 45 41.05	−73.18
	8	κ Ophiuchi	S.	. .	. .	23.2	25.3	27.4	29.5	31.6	. .	. .	51 27.40					
	9	ϵ Ursæ Minoris	S.	. .	. .	. .	. .	4.0	19.6	49.4	1.0	20.5	57 49.06					
4	10	δ Ursæ Minoris	E.	. .	. .	. .	. .	58.0	34.0	18.5	45.0	26.5	12 59.98					
	11	α Lyræ	E.	9.9	13.0	15.0	23.0	25.5	28.1	36.0	38.0	41.2	32 25.52	— 0.02	+ 9.00	+ 8.78	18 32 34.28	— 0.20
	12	γ Aquilæ	E.	. .	. .	. .	. .	. .	4.7	8.8	10.4	13.0	40 0.54	— 0.65	+ 8.71	+ 8.79	19 41 8.68	+ 0.11
	13	α Aquilæ	E.	10.0	12.5	14.0	20.3	22.4	24.4	30.5	32.3	34.7	44 22.34	— 0.68	+ 8.75	+ 8.79	19 44 30.45	+ 0.08
5	14	Sun I, N.	E.	. .	. .	37.7	40.0	42.2	44.6	46.5	. .	. .	13 42.20	— 1.12	. .	+ 8.81	21 13 49.89	. .
	15	Sun II, S.	E.	. .	. .	53.5	55.7	57.8	0.0	2.0	. .	. .	15 57.80	— 1.12	. .	+ 8.81	21 16 5.49	. .
	16	α Piscis Australis	E.	. .	. .	20.5	23.0	25.4	27.6	30.0	. .	. .	50 25.30	— 1.45	+ 8.63	+ 8.83	22 50 32.68	+ 0.24
	17	α Pegasi	E.	0.5	3.0	4.7	8.8	. .	17.3	21.5	23.2	25.7	58 13.08	— 0.57	+ 8.85	+ 8.83	22 58 21.34	+ 0.01
	18	ϵ Orionis	E.	23.2	25.8	27.3	33.5	35.5	37.6	43.5	45.2	47.8	29 35.49	— 0.90	+ 8.71	+ 8.90	5 29 43.49	+ 0.18
	19	136 Tauri	E.	57.6	59.4	3.9	6.2	8.5	10.8	13.2	17.8	19.5	45 8.54	— 0.36	. .	+ 8.91	5 45 17.09	— 0.22
	20	α Orionis	E.	54.2	57.0	58.5	4.5	6.7	8.8	14.9	16.6	19.0	48 6.69	— 0.74	+ 8.80	+ 8.91	5 48 14.86	+ 0.08
	21	141 Tauri	E.	36.3	39.2	40.7	47.4	. .	51.8	58.4	0.2	2.8	53 49.60	— 0.46	. .	+ 8.91	5 53 58.05	— 0.23
	22	μ Geminorum	E.	. .	. .	2.5	4.7	7.0	9.1	13.5	15.2	18.0	15 4.70	— 0.56	+ 9.17	+ 8.91	6 15 13.05	— 0.30
	23	γ Geminorum	E.	. .	. .	6.8	8.9	11.0	13.2	15.4	. .	. .	30 11.06	— 0.70	+ 9.03	+ 8.91	6 30 19.27	— 0.15
	24	51 Cephei	E.	. .	. .	. .	47.0	27.5	19.0	14.0	. .	44.0	39 27.32					
7	25	Sun I, N.	S.	30.0	32.8	34.2	40.9	43.0	45.0	51.4	53.0	55.7	21 42.89	— 1.25	. .	+ 9.66	21 21 51.30	. .
	26	Sun II, S.	S.	47.7	49.7	54.0	56.0	58.1	0.2	2.4	6.5	8.3	23 58.10	— 1.25	. .	+ 9.66	21 24 6.51	. .
	27	α Andromedæ	S.	21.3	24.3	25.9	33.0	35.3	37.6	44.5	46.2	49.2	1 35.26	— 0.20	+ 9.68	+ 9.70	0 1 44.76	+ 0.04
	28	Polaris	S.	. .	. .	29.0	56.0	21.0	44.5	9.0	. .	. .	10 19.86	. .	. .	. .	. . . .	. .
	29	β Tauri	S.	. .	. .	0.2	2.5	5.0	7.3	11.7	13.5	16.5	18 2.53	— 0.19	+ 9.76	+ 9.76	5 18 12.10	— 0.02
	30	ζ Tauri	S.	37.3	40.1	41.7	48.3	50.4	52.6	59.2	0.9	3.6	29 50.46	— 0.39	. .	+ 9.76	5 29 59.83	— 0.35
	31	130 Tauri	S.	36.3	39.0	40.7	47.1	49.4	51.5	57.9	59.5	2.1	39 49.28	— 0.47	. .	+ 9.76	5 39 58.57	— 0.40
	32	136 Tauri	S.	53.9	56.7	58.4	5.4	7.7	10.0	17.0	18.5	21.4	45 7.67	— 0.20	. .	+ 9.77	5 45 17.24	— 0.44
	33	α Orionis	S.	. .	1.3	3.6	5.7	7.8	9.7	13.9	15.5	18.0	48 5.64	— 0.72	+ 9.80	+ 9.77	5 48 14.69	— 0.07
	34	3 Geminorum	S.	. .	. .	44.0	46.3	48.5	50.8	52.9	. .	. .	1 48.50	— 0.34	. .	+ 9.77	6 1 57.93	— 0.51
	35	δ Ursæ Minoris, S.P.	S.	. .	. .	46.0	13.0	38.5	3.0	28.5	. .	. .	13 37.76	. .	. .	. .	. . . .	. .
	36	γ Geminorum	S.	57.4	0.0	1.7	8.0	10.0	12.2	18.6	20.3	22.9	30 10.12	— 0.50	+ 9.76	+ 9.77	6 30 19.39	— 0.02
13	37	α Aquilæ	F.	. .	15.7	17.8	19.9	22.0	23.9	28.0	29.5	32.2	44 19.80	— 0.58	+11.36	+11.27	19 44 30.49	— 0.05
	38	β Aquilæ	F.	. .	45.0	47.0	49.3	51.3	53.4	57.4	58.9	1.5	48 49.18	— 0.65	+11.29	+11.28	19 48 59.81	+ 0.07
	39	α Cygni	F.	32.8	36.3	38.4	47.0	50.0	52.8	1.4	3.5	7.3	36 49.94	+ 0.60	. .	+11.29	20 37 1.83	— 0.04
	40	Mercury II	F.	19.0	21.7	23.3	27.8	32.1	36.5	40.9	42.4	45.1	39 32.09	— 1.31	. .	+11.29	20 39 42.07	— 0.18
14	41	Sun I, N.	F.	8.5	11.0	12.9	19.0	21.3	23.5	29.5	31.2	33.8	49 21.19	— 1.11	. .	+11.32	21 49 31.40	. .
	42	Sun II, S.	F.	22.2	24.8	26.4	32.7	34.9	36.9	43.2	44.8	47.4	51 34.81	— 1.11	. .	+11.32	21 51 45.02	. .
	43	Anonymous	F.	17.0	20.7	22.8	31.8	34.8	37.8	46.7	49.0	52.7	18 34.81	+ 0.70	. .	+11.52	7 18 47.03	— 0.80
	44	α^2 Geminorum	F.	0.2	3.2	5.2	12.4	14.9	17.2	24.5	26.3	29.3	26 14.80	+ 0.09	+11.49	+11.53	7 26 26.42	+ 0.28
	45	β Geminorum	F.	4.2	7.0	8.7	15.7	18.0	20.3	27.3	29.0	32.0	37 18.02	— 0.03	+11.46	+11.53	7 37 29.52	+ 0.04
	46	ϕ Geminorum	F.	15.0	17.9	19.6	26.6	28.9	31.0	37.9	39.7	42.7	45 28.81	— 0.08	+11.55	+11.53	7 45 40.26	— 0.10

34. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellaneous Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	312 10	1.3	28.0	1.7	2.5	40	. .	140	. .	188	. .	55.4	47 47 0.5	. .	+ 1 10.7	98 54 32.4	+ 0.7
2	358 52	0.2	26.0	29.3	27.7	37	. .	319	. .	312	. .	55.4	1 4 12.1	. .	+ 1.2	52 10 34.5	− 1.7
3	348 12	2.0	26.3	29.3	29.8	39	. .	. .	. .	508	541	55.4	11 44 49.5	. .	+ 13.4	62 51 24.1	+ 1.3
4	329 34	0.0	24.1	0.1	29.9	33	. .	. .	. .	610	606	55.0	30 21 17.1	. .	+ 35.9	81 28 14.2	+ 0.3
5	304 28	26.3	22.0	24.1	27.1	34	420	448	. .	. .	. .	55.0	55 27 25.7	. .	+ 1 27.7	106 35 14.6	
6	303 56	25.7	21.4	25.1	27.4	36	. .	. .	. .	004	038	55.0	55 59 50.7	. .	+ 1 29.6	107 7 41.5	
7																	
8																	
9																	
10																	
11	359 42	6.8	1.8	5.0	4.5	35	. .	768	. .	752	. .	53.4	0 13 54.8	. .	+ 0.2	51 20 16.2	− 0.7
12	331 22	3.0	29.0	1.2	0.0	40	. .	. .	. .	530	520	53.4	28 35 4.1	. .	+ 32.5	79 41 57.8	− 1.0
13	329 34	5.7	0.8	5.0	5.0	33	. .	400	. .	420	. .	53.4	30 21 18.1	. .	+ 34.9	81 28 14.2	− 0.2
14	305 22	11 14.6	15.5	11.3	12.0	34	410	630	. .	. .	. .	53.4	54 34 13.8	. .	+ 1 22.9	105 41 57.9	
15	304 50	9 29.5	21.5	26.8	2.2	39	. .	. .	. .	210	308	53.4	55 6 41.6	. .	+ 1 24.6	106 14 27.4	
16	290 46	6.8	4.5	6.3	8.7	33	. .	. .	. .	208	268	53.4	69 9 17.7	. .	+ 2 33.0	120 18 11.8	− 1.9
17	335 34	2.5	0.0	4.4	6.8	37	. .	445	. .	475	. .	53.4	24 22 19.7	. .	+ 26.6	75 29 7.5	+ 2.1
18	319 46	7.7	2.4	5.8	6.2	36	. .	235	. .	198	. .	53.0	40 10 2.1	. .	+ 50.7	91 17 14.0	+ 0.7
19	348 38	2.7	27.2	1.8	4.2	38	. .	775	. .	787	. .	53.0	11 18 37.7	. .	+ 12.0	62 25 10.9	+ 3.0
20	328 26	7.3	0.0	6.8	5.7	37	. .	038	. .	008	. .	53.0	31 30 14.1	. .	+ 36.8	82 37 12.1	+ 1.6
21	343 26	5.0	29.0	2.8	5.3	34	. .	765	. .	778	. .	53.0	16 29 37.6	. .	+ 17.8	67 36 16.6	+ 1.6
22																	
23	337 32	3.5	29.6	3.5	5.7	31	. .	760	. .	822	. .	53.0	22 22 49.6	. .	+ 24.8	73 29 35.6	− 1.2
24																	
25	305 58	2.0	29.0	1.5	5.0	33	395	330	. .	. .	. .	54.4	53 57 15.6	. .	+ 1 24.4	105 5 5.2	
26	305 26	27.5	23.7	25.0	27.2	35	. .	. .	. .	570	500	54.4	54 29 43.6	. .	+ 1 26.1	105 37 30.9	
27	349 26	10 14.1	9.7	11.7	13.1	37	. .	363	. .	403	. .	54.4	10 30 28.3	. .	+ 11.3	61 37 0.8	− 0.1
28	49 38	9 23.5	20.4	23.0	24.7	32	885	940	925	860	865	54.4	310 17 0.1	. .	− 1 12.4	1 22 8.9	− 0.6
29	349 32	7.5	2.1	4.4	5.3	34	. .	. .	. .	365	385	55.7	10 23 36.1	. .	+ 11.5	61 30 8.8	+ 0.8
30	342 6	9.1	4.3	5.8	6.8	34	. .	. .	. .	158	078	55.7	17 49 33.8	. .	+ 20.2	68 56 15.2	+ 1.4
31	338 44	10.6	5.9	7.8	8.7	37	. .	. .	. .	675	695	55.7	21 12 30.2	. .	+ 24.4	72 19 15.8	+ 0.4
32	348 38	4.8	29.6	1.0	3.7	38	. .	510	. .	576	. .	55.7	11 18 37.5	. .	+ 12.6	62 25 11.3	+ 3.2
33	328 26	9.2	3.9	6.7	7.4	36	. .	. .	. .	560	596	55.7	31 30 11.8	. .	+ 38.5	82 37 11.5	+ 1.0
34	344 10	9.5	4.2	5.8	6.7	33	500	. .	. .	. .	530	55.7	15 45 24.4	. .	+ 17.8	66 52 3.4	+ 1.9
35	54 24	6.9	3.3	5.1	6.5	32	970	. .	950	. .	990	55.7	305 31 14.8	. .	− 1 28.1	356 36 7.9	− 0.1
36	337 32	7.1	2.5	4.4	4.6	31	380	420	. .	460	440	55.7	22 22 50.6	. .	+ 26.0	73 29 37.8	+ 1.0
37	329 34	0.2	24.7	27.0	0.2	33	. .	. .	. .	824	810	55.5	30 21 20.4	. .	+ 35.4	81 28 17.0	+ 1.4
38	327 8	5.4	29.2	2.0	5.4	35	. .	. .	. .	564	568	55.5	32 47 52.2	. .	+ 38.9	83 54 52.3	+ 1.4
39	5 52	5.0	1.5	2.7	4.2	38	. .	125	. .	100	. .	55.5	354 4 32.0	. .	− 6.4	45 10 46.8	+ 1.0
40																	
41	308 16	4.6	0.6	2.2	4.3	37	682	755	. .	. .	. .	55.5	51 40 24.7	. .	+ 1 15.6	102 48 1.5	
42	307 42	9 17.5	11.4	16.4	18.6	32	. .	. .	. .	446	408	55.5	52 12 47.2	. .	+ 1 17.0	103 20 25.4	
43	7 48	4.2	0.1	0.7	0.9	32	. .	408	. .	438	. .	55.1	352 7 2.4	. .	− 8.6	43 13 15.0	+ 6.5
44	353 12	7.6	2.5	4.3	4.2	32	. .	786	. .	788	. .	55.1	6 43 10.9	. .	+ 7.3	57 49 39.4	+ 2.8
45	349 22	6.7	1.5	3.3	4.5	33	. .	720	. .	704	. .	55.1	10 33 24.5	. .	+ 11.6	61 39 57.3	− 0.7
46	348 8	16.6	12.1	12.6	13.6	34	. .	. .	. .	196	208	55.1	11 47 41.8	. .	+ 13.0	62 54 16.0	− 0.5

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
3	. .	. .	8.5
4	30.420	66.0	31.0
5	30.422	65.9	37.0
9	29.880	67.0	31.5
10	30.230	59.5	
13	30.276	65.5	42.0
15	. .	. .	46.5
25	. .	. .	32.0
27	. .	. .	35.0
28	30.607	68.0	32.5
29	30.592	67.0	
30	. .	. .	22.0
34	30.584	67.0	20.5
35	. .	. .	20.0
36	. .	. .	20.0
38	29.678	66.0	25.8
40	29.672	65.8	27.8
42	29.660	65.5	30.5
45	29.808	64.0	13.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
5	− 7.3	+ 16 13.4	. .	+ 16 6.1
6	− 7.4	− 16 13.4	. .	− 16 20.8
14	− 7.2	+ 16 14.7	. .	+ 16 7.5
15	− 7.3	− 16 14.7	. .	− 16 22.0
25	− 7.2	+ 16 12.8	. .	+ 16 5.6
26	− 7.3	− 16 12.8	. .	− 16 20.1
41	− 7.0	+ 16 11.9	. .	+ 16 4.9
42	− 7.1	− 16 11.9	. .	− 16 19.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Feb. 14	1	λ Ursæ Minoris, S.P.	F.	. .	. .	7.0	19.0	28.0	39.0	50.0	. .	. .	52 28.60	. .	. .	. .	. . . .	. .
	2	Uranus I, C. . .	F.	51.8	54.4	56.0	. .	. .	. .	13.6	15.2	17.9	1 4.82	— 0.25	. .	+11.54	8 1 16.11	. .
	3	Uranus II . . .	F.	. .	. .	0.7	3.0	5.3	7.4	9.6	. .	. .	1 5.20	— 0.25	. .	+11.54	8 1 16.49	
15	4	Moon I, S. . . .	S.	46.9	49.6	51.2	57.6	59.8	2.1	8.3	9.9	12.8	23 59.80	— 1.04	. .	+12.32	3 24 11.08	+64.98
	5	ζ Persei	S.	. .	. .	48.2	50.7	53.0	55.5	57.9	. .	. .	45 53.06	— 0.73	+12.36	+12.32	3 46 4.64	— 0.06
	6	B. A. C. 1272 . .	S.	15.0	17.7	19.3	25.7	28.2	30.0	36.6	38.1	40.9	0 27.94	— 1.01	. .	+12.32	4 0 39.25	+ 0.51
	7	ω^2 Tauri	S.	20.8	23.5	25.2	31.8	34.0	36.2	42.7	44.4	47.0	9 33.96	— 0.96	. .	+12.32	4 9 45.32	+ 0.47
	8	63 Tauri	S.	. .	. .	47.4	49.7	51.9	54.0	56.1	. .	. .	15 51.82	— 1.03	. .	+12.32	4 16 3.11	+ 0.42
	9	α Tauri	S.	10.3	13.0	14.6	20.8	23.0	25.1	31.6	33.2	35.9	28 23.06	— 1.04	+12.27	+12.32	4 28 34.34	+ 0.03
	10	i Tauri	S.	28.8	31.5	33.0	39.5	41.8	43.9	50.3	52.0	54.7	43 41.72	— 0.99	. .	+12.32	4 43 53.05	+ 0.27
16	11	Moon I, S. . . .	Ha.	8.8	11.5	13.2	19.7	21.9	24.3	30.8	32.5	35.3	14 22.00	— 1.05	. .	+11.55	4 14 32.50	+65.79
	12	α Tauri	Ha	11.0	13.7	15.2	21.6	23.7	25.8	32.3	33.9	36.6	28 23.76	— 1.11	+11.63	+11.55	4 28 34.20	— 0.10
	13	i Tauri	Ha.	. .	. .	. .	. .	. .	. .	51.1	52.8	55.4	43 42.39	— 1.07	. .	+11.55	4 43 52.87	+ 0.28
	14	ι Aurigæ. . . .	Ha.	13.9	17.0	18.8	26.0	28.5	31.0	38.3	40.0	43.1	48 28.51	— 0.78	+11.55	+11.55	4 48 39.28	— 0.04
	15	11 Orionis. . . .	Ha.	52.0	54.6	56.3	2.7	4.7	6.8	13.0	14.7	17.6	57 4.71	— 1.12	+11.46	+11.55	4 57 15.14	— 0.08
19	16	χ^3 Orionis. . . .	S.	30.0	32.7	34.3	40.7	43.0	45.1	51.6	53.4	56.0	55 42.98	— 1.02	. .	+11.97	5 55 53.93	— 0.07
	17	δ Ursæ Minoris, S.P.	S.	. .	. .	41.0	5.0	31.0	57.0	23.5	. .	. .	13 31.50	—15.72	. .	+11.97	18 13 27.75	— 0.69
	18	γ Geminorum . .	S.	55.5	58.2	59.8	6.2	. .	10.3	16.9	18.5	21.0	30 8.30	— 1.07	+12.04	+11.98	6 30 19.21	— 0.09
	19	51 Cephei	S.	. .	. .	2.5	45.0	28.0	10.5	53.0	. .	. .	39 27.80	+16.48	. .	+11.98	6 39 56.26	— 0.20
	20	ω Geminorum . .	S.	12.5	15.4	17.0	23.9	26.0	28.3	35.0	36.6	39.4	54 26.01	— 0.93	. .	+11.98	6 54 37.06	— 0.38
	21	47 Geminorum . .	S.	2.2	5.0	6.8	13.8	16.0	18.3	25.3	27.0	29.9	3 16.03	— 0.88	. .	+11.98	7 3 27.13	— 0.43
	22	δ Geminorum . .	S.	4.7	7.5	9.3	15.9	18.1	20.3	27.0	28.5	31.4	12 18.08	— 0.97	+12.04	+11.98	7 12 28.99	— 0.12
	23	α^1 Geminorum . .	S.	. .	. .	9.9	. .	14.6	17.0	19.6	. .	. .	26 14.68	— 0.78	. .	+11.98	7 26 25.88	
	24	α^2 Geminorum . .	S.	. .	. .	. .	. .	. .	. .	24.8	26.7	29.9	26 15.26	— 0.78	+11.86	+11.98	7 26 26.46	+ 0.36
	25	α Canis Minoris. .	S.	13.2	16.0	17.5	23.6	25.7	27.7	34.0	35.5	37.9	32 25.68	— 1.24	+12.01	+11.98	7 32 36.42	— 0.19
																		— 0.22
	26	β Geminorum . .	S.	4.4	7.3	8.9	16.0	18.3	20.6	27.6	29.3	32.3	37 18.30	— 0.86	+11.98	+11.98	7 37 29.42	— 0.03
	27	ω^1 Geminorum . .	S.	. .	. .	. .	0.6	2.9	5.3	9.7	11.5	14.3	53 0.67	— 0.91	. .	+11.98	7 53 11.74	— 0.63
	28	d^1 Cancri	S.	38.7	41.5	43.1	49.5	51.7	53.8	0.3	2.1	4.7	15 51.71	— 1.03	. .	+11.98	8 16 2.66	— 0.66
	29	θ Cancri	S.	54.5	57.2	59.0	5.3	7.5	9.6	16.0	17.7	20.4	24 7.47	— 1.04	. .	+11.98	8 24 18.41	— 0.68
	30	A^2 Cancri	S.	32.2	34.9	36.5	42.7	44.8	46.9	53.0	54.7	57.4	39 44.79	— 1.13	. .	+11.99	8 39 55.65	— 0.69
	31	60 Cancri	S.	33.4	36.0	37.6	43.9	46.0	48.0	54.5	55.8	58.6	48 45.98	— 1.14	. .	+11.99	8 48 56.83	— 0.71
	32	κ Cancri	S.	26.0	28.7	30.4	36.6	38.6	40.8	47.0	48.5	51.3	0 38.66	— 1.15	+ 11.95	+11.99	9 0 49.50	+ 0.03
20	33	δ Ursæ Minoris, S.P.	Ha	. .	. .	43.0	8.0	32.5	59.5	24.5	. .	. .	13 33.50	. .	. .	. .	. . . .	. .
	34	γ Geminorum . .	Ha.	55.3	58.0	59.6	5.9	8.1	10.3	16.8	18.2	20.8	30 8.11	— 1.18	+12.33	. .	. . . .	. .
	35	ε Geminorum . .	Ha.	. .	. .	. .	52.3	54.6	56.9	1.4	3.0	6.0	35 52.35	— 1.02	. .	+12.24	6 36 3.57	— 0.27
	36	α^2 Geminorum . .	Ha	0.5	3.5	5.4	12.8	15.1	17.5	24.7	26.6	29.4	26 15.06	— 0.87	+12.14			
21	37	ω Geminorum . .	E.	12.7	15.6	17.3	24.0	26.2	28.4	35.1	36.8	39.6	54 26.19	— 1.06	. .	+12.03	6 54 37.16	— 0.35
	38	47 Geminorum . .	E.	2.5	5.3	7.0	13.8	16.1	18.4	25.4	27.0	30.0	3 16.17	— 1.01	. .	+12.03	7 3 27.19	— 0.41
	39	λ Geminorum . .	E.	20.8	23 5	25.1	31.5	33.7	35.9	42.3	43.9	46.5	10 33.69	— 1.17	. .	+12.03	7 10 44.55	— 0.40
	40	δ Geminorum . .	E.	. .	. .	. .	. .	20.3	22.4	26.9	28.5	31.5	12 18.08	— 1.09	+12.04	+12.03	7 12 29.02	— 0.07
	41	α^2 Geminorum . .	E.	0.7	3.7	5.5	12.7	15.1	17.6	24.8	26.6	29.7	26 15.16	— 0.92	+12.08	+12.03	7 26 26.27	+ 0.19
	42	Jupiter I, N. . .	E.	21.0	23.8	25.5	. .	. .	. .	43.0	44.7	47.5	29 34.25	— 1.08	. .	+12.03	7 29 45.20	. .
	43	Jupiter II, S. . .	E.	. .	. .	33.0	35.2	37.5	39.7	41.8	. .	. .	29 37.44	— 1.08	. .	+12.03	7 29 48.39	. .
	44	β Geminorum . .	E.	4.5	7.4	9.0	16.0	18.4	20.6	27.7	29.4	32.4	37 18.38	— 0.99	+12.01	+12.03	7 37 29.42	— 0.01

5, 11. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	52 6	29.0	24.0	25.6	27.1	37	180	220	220	208	220	55.1	307 50 10.2	. .	− 1 20.2	358 55 11.2	+ 0.3
2	342 10	2.2	27.0	29.5	0.5	34	. .	010	. .	006	. .	55.1	17 45 24.8	. .	+ 20.0	68 52 6.0	
3																	
4	356 50	9 5.6	0.3	3.6	4.6	37	760	. .	715	. .	740	55.9	23 5 56.6	. .	+ 26.1	74 12 43.9	
5	352 32	10 2.4	28.0	1.0	2.1	33	680	. .	. .	. .	710	55.9	7 23 21.8	. .	+ 8.0	58 29 51.0	− 0.2
6	338 2	3.6	27.9	1.5	2.3	34	. .	180	. .	185	. .	55.9	21 53 29.8	. .	+ 24.7	73 0 15.7	− 0.8
7	341 18	5.4	0.4	3.3	4.5	34	. .	440	. .	440	. .	55.9	18 37 35.8	. .	+ 20.7	69 44 17.7	+ 0.5
8	337 32	5.9	1.0	4.3	5.2	38	. .	. .	. .	560	560	55.9	22 24 39.8	. .	+ 25.4	73 31 26.4	− 0.8
9	337 18	29.5	24.5	27.8	28.4	37	. .	345	. .	385	. .	55.9	22 38 14.9	. .	+ 25.7	73 45 1.8	+ 1.2
10	339 40	4.3	28.3	1.6	2.5	36	. .	383	. .	393	. .	55.9	20 16 3.8	. .	+ 22.7	71 22 47.7	− 0.7
11	340 32	9.2	3.5	0.2	0.6	28	125	. .	065	. .	005	54.7	19 21 56.9	. .	+ 20.9	70 28 38.0	
12	337 18	7.2	2.5	29.4	0.7	37	. .	225	. .	245	. .	54.7	22 38 16.5	. .	+ 24.8	73 45 2.5	+ 1.9
13	339 40	0.2	25.0	22.5	24.2	37	. .	. .	. .	045	040	54.7	20 16 6.6	. .	+ 22.0	71 22 49.8	− 0.7
14	354 0	26.5	22.5	19.7	19.2	36	. .	065	. .	060	. .	54.7	5 55 48.2	. .	+ 6.2	57 2 15.6	+ 0.6
15	336 16	5.6	2.0	28.5	28.4	35	. .	515	. .	470	. .	54.7	23 39 48.4	. .	+ 26.1	74 46 35.7	+ 0.5
16	340 44	10 24.1	19.1	15.3	16.2	34	. .	561	. .	575	. .	54.6	19 11 51.7	. .	+ 21.2	70 18 34.1	+ 1.1
17	54 24	10 20.1	15.9	11.7	14.4	32	135	. .	075	. .	160	54.6	305 31 10.8	. .	− 1 25.4	356 36 6.6	+ 1.3
18	337 32	18.0	. .	9.8	. .	31	. .	050	. .	050	. .	54.6	22 22 53.0	. .	+ 25.2	73 29 39.4	+ 2.6
19	48 16	26.6	21.9	18.4	20.0	35	995	005	030	955	005	54.6	311 40 16.7	. .	− 1 8.6	2 45 29.3	+ 1.2
20	345 26	21.7	17.7	13.3	14.5	33	. .	. .	. .	748	742	54.6	14 29 37.3	. .	+ 15.8	65 36 14.3	+ 2.2
21	348 6	25.4	20.5	16.1	21.1	33	. .	185	. .	220	. .	54.6	11 49 32.9	. .	+ 12.8	62 56 6.9	+ 2.7
22	343 16	22.3	16.9	12.5	16.3	36	. .	630	. .	720	. .	54.6	16 40 22.4	. .	+ 18.3	67 47 1.9	+ 0.5
23																	
24																	
25	326 36	23.2	17.8	14.4	14.7	34	960	930	. .	. .	. .	54.6	33 19 56.4	. .	+ 40.2	84 26 57.8	− 1.2
26	349 22	21.6	16.5	13.1	11.8	32	. .	990	. .	034	. .	54.6	10 33 25.0	. .	+ 11.4	61 39 57.6	− 0.1
27	346 48	15.2	10.6	6.4	6.0	39	. .	. .	. .	. .	245	54.6	13 8 54.6	. .	+ 14.3	64 15 29.9	+ 1.4
28	339 48	15.3	10.3	6.7	6.7	38	. .	750	. .	780	. .	54.6	20 8 47.3	. .	+ 22.4	71 15 30.9	− 0.3
29	339 34	26.5	22.1	17.5	19.0	34	. .	. .	. .	010	010	54.6	20 21 45.7	. .	+ 22.7	71 28 29.6	− 0.5
30	333 38	17.5	12.6	8.5	7.8	37	. .	386	. .	370	. .	54.6	26 18 27.8	. .	+ 30.3	77 25 19.3	− 1.6
31	333 10	23.0	18.2	14.5	15.0	36	. .	500	. .	520	. .	54.6	26 46 20.5	. .	+ 31.0	77 53 12.7	− 1.8
32	332 14	22.5	18.5	14.9	16.6	36	. .	010	. .	050	. .	54.6	27 42 13.6	. .	+ 32.2	78 49 7.0	+ 0.4
33	54 24	7.0	1.5	29.0	0.5	32	. .	880	910	940	. .	53.7	305 31 8.6	. .	− 1 24.0	356 36 5.8	+ 0.7
34	337 32	6.5	1.6	29.0	1.2	31	. .	865	. .	845	. .	53.7	22 22 52.6	. .	+ 24.7	73 29 38.5	+ 1.7
35	346 18	7.2	1.0	27.0	1.0	36	. .	. .	. .	. .	470	53.7	13 38 3.1	. .	+ 14.6	64 44 38.9	+ 2.8
36																	
37	345 26	10 25.2	22.5	19.0	22.3	33	. .	520	. .	620	. .	52.8	14 29 38.2	. .	+ 15.2	65 36 14.6	+ 2.2
38	348 6	10 26.9	21.5	18.7	20.5	33	. .	245	. .	250	. .	52.8	11 49 33.0	. .	+ 12.3	62 56 6.5	+ 2.8
39	337 50	10 21.0	16.2	11.2	18.1	39	. .	728	. .	732	. .	52.8	22 7 7.2	. .	+ 23.9	73 13 52.3	0.0
40	343 16	10 29.5	24.2	19.8	21.8	36	. .	. .	. .	342	345	52.8	16 40 22.4	. .	+ 17.6	67 47 1.2	− 0.2
41	353 12	11.3	5.8	3.5	4.2	33	. .	955	. .	920	. .	52.8	6 43 27.9	. .	+ 6.9	57 49 56.0	0.0
42	343 24	15.8	9.0	6.5	8.8	34	670	. .	. .	. .	720	52.8	16 31 43.5	. .	+ 17.4	67 38 22.1	
43	343 24	15.8	9.0	6.5	8.8	37	. .	350	. .	340	. .	52.8	16 32 24.0	. .	+ 17.4	67 39 2.6	
44	349 22	10 13.5	7.0	4.0	5.8	33	. .	728	. .	720	. .	52.8	10 33 26.0	. .	+ 11.0	61 39 58.2	+ 0.7

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
4	. .	. .	22.5
5	29.864	67.0	21.5
9	29.864	67.0	
10	29.876	67.0	20.0
11	. .	. .	35.5
12	29.850	68.0	36.0
15	. .	. .	35.0
16	30.108	65.0	29.0
17	30.110	65.0	
18	. .	. .	27.5
19	. .	. .	27.0
20	. .	. .	27.0
21	. .	. .	27.0
25	. .	. .	27.0
28	30.096	66.0	
29	. .	. .	26.0
30	. .	. .	26.0
31	. .	. .	25.3
32	30.100	66.0	25.0
33	29.968	66.0	33.5
37	. .	. .	41.8

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
2	− 0.2	. . .	. .	− 0.2
4	−21 27.5	− 15 3.9	. .	− 36 31.4
11	−17 56.0	− 14 55.2	. .	− 32 51.2
42	− 0.5	+ 20.2	. .	+ 19.7
43	− 0.6	− 20.2	. .	− 20.8

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Feb. 21	1	ϕ Geminorum . .	E.	15.5	18.4	20.0	27.0	29.2	31.5	38.4	40.3	43.0	45 29.26	— 1.01	+11.99	+12.03	7 45 40.28	— 0.04
	2	λ Ursæ Minoris, S.P.	E.	. .	. .	31.0	43.0	57.0	8.0	. .	. .	. .	51 55.45*	. .	. .	. .	. . . .	. .
	3	θ Cancri	E.	54.5	57.3	59.0	5.4	7.5	9.6	16.0	17.7	20.5	24 7.50	— 1.15	. .	+12.03	8 24 18.38	— 0.67
	4	A[1] Cancri	E.	46.3	48.9	50.5	56.8	58.9	1.0	7.2	8.8	11.4	35 58.87	— 1.22	. .	+12.03	8 36 9.68	— 0.68
	5	Moon I, N. . .	E.	49.1	52.0	53.5	0.4	2.7	4.9	11.6	13.3	16.2	40 2.63	— 1.09	. .	+12.04	8 40 13.58	+66.65
	6	60 Cancri	E.	33.3	36.0	37.6	43.9	46.0	48.1	54.5	56.0	58.6	48 46.00	— 1.24	. .	+12.04	8 48 56.80	— 0.73
	7	γ Aquilæ	F.	45.5	48.1	49.6	55.7	57.9	0.0	6.2	7.8	10.4	39 57.91	— 1.26	+12.28	+12.23	19 40 8.88	— 0.02
	8	α Aquilæ	F.	. .	15.6	17.7	20.0	22.0	24.0	28.0	29.6	32.0	44 19.79	— 1.28	+12.23	+12.23	19 44 30.74	+ 0.04
	9	Venus II, N. . .	F.	44.5	47.2	49.0	55.4	57.4	59.7	6.3	7.9	10.8	55 57.58	— 1.69	. .	+12.23	19 56 8.12	— 0.50
	10	Venus, S., C. . .	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	11	α Cygni	F.	33.0	36.9	38.9	47.6	50.5	53.4	1.8	4.0	7.7	36 50.42	— 0.62	. .	+12.23	20 37 2.03	+ 0.03
	12	ζ Cygni	F.	2.0	5.0	6.8	13.8	16.2	18.5	25.7	27.5	30.3	7 16.20	— 0.96	+12.18	+12.24	21 7 27.48	+ 0.07
	13	α Cephei	F.	49.5	55.0	58.3	11.5	15.9	20.1	33.2	36.4	41.8	15 15.74	+ 0.06	. .	+12.24	21 15 28.04	— 0.23
	14	Mercury II, C. .	F.	7.0	9.8	11.3	17.8	19.8	22.2	28.3	30.0	32.6	31 19.87	— 1.65	. .	+12.24	21 31 30.46	— 0.17
	15	ε Pegasi	F.	28.7	33.0	37.0	39.2	41.3	43.4	45.5	49.6	53.6	37 41.26	— 1.27	+12.20	+12.24	21 37 52.23	+ 0.05
22	16	β Ceti.	F.	44.7	47.6	49.3	55.8	57.9	0.0	6.4	8.1	10.8	36 57.84	— 1.67	+12.14	+12.26	0 37 8.43	+ 0.17
	17	Polaris	F.	. .	. .	35.0	0.0	26.0	51.0	16.5	. .	. .	10 25.70	+30.67	. .	+12.27	1 11 8.64	— 2.58
	18	ω Geminorum . .	F.	12.3	14.9	16.6	23.6	25.7	27.9	34.8	36.4	39.2	54 25.71	— 1.01	. .	+12.27	6 54 36.97	— 0.34
	19	ζ Geminorum . .	F.	7.0	9.6	11.2	17.9	20.0	22.2	28.9	30.4	33.0	56 20.02	— 1.07	. .	+12.31	6 56 31.26	— 0.35
	20	48 Geminorum . .	F.	15.2	18.0	19.8	26.5	28.7	30.9	37.6	39.4	42.3	4 28.71	— 1.01	. .	+12.31	7 4 40.01	— 0.39
	21	δ Geminorum . .	F.	4.5	7.3	8.9	15.5	17.7	19.9	26.5	28.3	30.9	12 17.72	— 1.04	+12.34	+12.31	7 12 28.99	— 0.09
	22	Anonymous . .	F.	17.3	20.9	23.0	32.0	35.0	38.0	47.0	49.2	52.8	18 35.02	— 0.53	. .	+12.31	7 18 46.80	— 0.70
	23	Jupiter I, N. . .	F.	2.8	5.6	7.2	. .	. .	. .	24.9	26.5	29.3	29 16.05	— 1.04	. .	+12.31	7 29 27.32	. .
	24	Jupiter II, S. . .	F.	. .	. .	14.9	17.2	19.4	21.6	24.0	. .	. .	29 19.42	— 1.04	. .	+12.31	7 29 30.69	. .
	25	β Geminorum . .	F.	4.0	6.9	8.7	15.5	17.9	20.3	27.2	28.9	31.8	37 17.91	— 0.95	+12.43	+12.31	7 37 29.27	— 0.15
	26	ϕ Geminorum . .	F.	15.0	18.0	19.8	26.6	28.9	31.1	38.1	39.7	42.6	45 28.87	— 0.96	+12.33	+12.31	7 45 40.22	— 0.10
	27	λ Ursæ Minoris, S.P.	F.	. .	. .	33.0	45.0	53.0	4.0	. .	. .	. .	51 54.28	−43.48	. .	+12.32	19 51 23.12	— 4.57
	28	Uranus I, C. . .	F.	41.2	44.0	45.7	. .	. .	. .	3.0	4.7	7.5	59 54.35	— 1.06	. .	+12.32	8 0 5.61	. .
	29	Uranus II . . .	F.	. .	. .	50.3	52.5	54.6	56.8	59.1	. .	. .	59 54.66	— 1.06	. .	+12.32	8 0 5.92	. .
	30	χ Cancri	F.	52.7	55.5	57.2	4.2	6.4	8.7	15.6	17.4	20.3	12 6.44	— 0.96	. .	+12.32	8 12 17.80	— 0.70
	31	d^2 Cancri	F.	11.6	14.3	15.9	22.3	24.5	26.6	33.0	34.4	37.2	18 24.42	— 1.12	. .	+12.32	8 18 35.62	— 0.65
	32	θ Cancri	F.	. .	2.7	5.0	7.1	9.2	11.4	15.7	17.3	20.0	24 7.07	— 1.11	. .	+12.32	8 24 18.28	— 0.67
	33	γ Cancri	F.	28.7	31.5	33.1	39.7	41.9	44.0	50.7	52.2	55.0	35 41.87	— 1.05	. .	+12.32	8 35 53.14	— 0.72
	34	ε Hydræ	F.	. .	41.1	45.3	. .	49.4	51.4	53.5	59.2	1.7	39 49.37	— 1.28	+12.36	+12.32	8 40 0.41	— 0.08
	35	κ Cancri	F.	25.8	28.5	30.0	36.3	38.4	40.4	46.6	48.2	50.7	0 38.32	— 1.22	+12.36	+12.32	9 0 49.42	— 0.05
	36	Moon I, N. . .	F.	56.4	59.3	1.1	7.6	9.8	12.1	18.6	20.4	23.1	32 9.82	— 1.10	. .	+12.33	9 32 21.05	+65.71
	37	ε Leonis	F.	10.9	13.8	15.5	22.2	24.4	26.6	33.5	35.0	37.8	38 24.41	— 1.01	+12.38	+12.33	9 38 35.73	+ 0.11
	38	μ Leonis	F.	4.6	7.5	9.3	16.1	18.4	20.6	27.6	29.2	32.1	45 18.38	— 0.97	+12.26	+12.33	9 45 29.74	+ 0.06
	39	α Leonis	F.	10.3	13.0	14.6	20.7	23.0	25.1	31.2	32.8	35.5	1 22.91	— 1.20	+12.29	+12.33	10 1 34.04	0.00
23	40	δ Ursæ Minoris, S.P.	S.	. .	. .	6.0	31.0	57.5	23.0	13.0	47.5	5.0	13 31.43	−14.72	. .	+12.54	18 13 29.25	— 0.37
	41	γ Geminorum . .	S.	55.0	57.6	59.2	5.7	7.9	10.0	16.4	17.9	20.6	30 7.81	— 1.15	+12.56	+12.55	6 30 19.21	— 0.04
	42	51 Cephei	S.	. .	. .	2.0	44.5	28.0	10.0	53.5	. .	. .	39 27.60	+15.02	. .	+12.55	6 39 55.17	— 0.09
	43	ζ Geminorum . .	S.	. .	. .	15.4	17.6	19.8	22.1	24.2	. .	. .	56 19.82	— 1.08	. .	+12.55	6 56 31.29	— 0.33
	44	47 Geminorum . .	S.	1.6	4.6	6.3	13.2	15.5	17.9	24.7	26.4	29.3	3 15.50	— 0.98	. .	+12.55	7 3 27.07	— 0.36
	45	63 Geminorum . .	S.	. .	. .	52.9	55.3	57.4	59.6	1.8	. .	. .	19 57.40	— 1.07	. .	+12.55	7 20 8.88	— 0.44
	46	a^1 Geminorum . .	S.	0.0	2.9	4.6	. .	. .	. .	23.9	25.7	28.8	26 14.32	— 0.89	. .	+12.55	7 26 25.98	— 0.30
	47	a^2 Geminorum . .	S.	. .	. .	9.9	12.2	14.6	17.0	19.4	. .	. .	26 14.62	— 0.89	+12.57	+12.55	7 26 26.28	+ 0.22
	48	Jupiter I . . .	S.	. .	. .	. .	. .	. .	3.4	7.9	9.3	12.1	28 58.93	— 1.06	. .	+12.55	7 29 10.42	+ 1.61
	49	α Cancri	S.	6.0	8.5	10.0	16.3	18.5	20.5	26.9	28.4	31.0	51 18.46	— 1.22	. .	+12.56	8 51 29.80	— 0.71
	50	κ Cancri	S.	25.6	28.2	29.8	36.1	38.4	40.3	46.6	48.1	50.7	0 38.20	— 1.24	+12.50	+12.56	9 0 49.52	+ 0.05

36, 45. Bisections at sets B and D'
43. Bisections at wires V and VII.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	348 8	10 21.7	17.3	14.0	17.3	34	. .	152	. .	240	. .	52.8	11 47 43.2	. .	+ 12.3	62 54 16.7	+ 0.7
2	52 6	9.3	4.8	1.5	3.8	36	. .	470	. .	425	. .	52.8	307 50 4.8	. .	− 1 15.6	358 55 10.4	+ 1.6
3	339 34	10.7	4.5	1.2	4.2	35	. .	258	. .	220	. .	52.8	20 21 46.7	. .	+ 21.9	71 28 29.8	− 0.5
4	334 12	11.8	6.8	3.8	6.3	39	. .	590	. .	545	. .	52.8	25 44 55.3	. .	+ 28.4	76 51 44.9	− 1.5
5	343 12	10 13.0	7.6	4.3	6.6	34	. .	020	170	340	. .	52.8	16 43 33.1	. .	+ 17.7	67 50 12.0	
6	333 10	10 7.2	3.2	1.0	0.8	37	. .	745	. .	792	. .	52.8	26 46 23.5	. .	+ 29.8	77 53 14.5	− 1.8
7	331 20	10 26.2	22.2	18.7	23.0	31	. .	. .	535	525	. .	54.2	28 35 8.5	. .	+ 32.6	79 42 2.3	+ 1.1
8	329 34	8.5	4.8	28.0	7.6	33	. .	. .	530	526	. .	54.2	30 21 21.3	. .	+ 35.0	81 28 17.5	+ 1.0
9	300 44	6.5	2.0	26.2	4.7	37	476	. .	. .	518	. .	54.2	59 12 19.7	. .	+ 1 40.2	110 20 21.1	
10	300 44	6.5	2.0	26.2	4.7	38	. .	438	. .	450	. .	54.2	59 12 34.4	. .	+ 1 40.2	110 20 35.8	
11	5 52	4.7	2.1	25.9	0.5	38	. .	. .	392	388	. .	54.2	354 4 32.6	. .	− 6.2	45 10 47.6	− 0.5
12	350 44	3.8	28.6	23.4	29.8	34	. .	552	. .	544	. .	54.2	9 11 31.4	. .	+ 9.7	60 18 2.3	+ 0.8
13	23 4	7.0	3.3	28.6	3.2	34	. .	650	. .	676	. .	54.2	336 51 37.7	. .	− 25.7	27 57 33.2	− 1.7
14	304 14	6.2	1.5	28.5	3.5	38	. .	310	. .	322	. .	54.2	55 42 32.5	. .	+ 1 28.0	106 50 21.7	
15	330 20	9 28.8	24.9	21.0	26.8	36	. .	330	. .	320	. .	54.2	29 35 55.0	. .	+ 34.1	80 42 50.3	+ 0.7
16	302 22	5.3	0.3	26.5	2.4	35	. .	. .	. .	168	160	54.2	57 33 42.6	. .	+ 1 33.7	108 41 37.5	+ 1.9
17	49 38	5.8	5.7	2.0	4.3	32	222	226	216	220	. .	54.2	310 17 1.2	. .	− 1 10.4	1 22 12.0	− 0.1
18	345 26	7.3	3.0	27.8	2.2	34	. .	750	. .	740	. .	54.2	14 29 38.0	. .	+ 15.8	65 36 15.0	+ 2.3
19	341 48	9.9	5.2	0.1	5.1	35	. .	902	. .	900	. .	54.2	18 7 58.3	. .	+ 20.0	69 14 39.5	+ 1.2
20	345 22	15.8	11.2	6.2	10.6	31	. .	435	. .	425	. .	54.2	14 32 55.5	. .	+ 15.9	65 39 32.6	+ 2.2
21	343 16	8.3	3.8	29.1	2.1	37	. .	598	. .	596	. .	54.2	16 40 22.5	. .	+ 18.3	67 47 2.0	+ 0.7
22	7 48	4.9	29.9	24.9	28.5	32	. .	. .	. .	532	516	54.2	352 7 1.2	. .	− 8.5	43 13 13.9	+ 7.7
23	343 26	17.5	12.1	7.4	11.4	39	488	526	. .	. .	. .	54.2	16 31 1.0	. .	+ 18.2	67 37 40.4	
24	343 26	17.5	12.1	7.4	11.4	42	. .	. .	. .	410	400	54.2	16 31 45.1	. .	+ 18.2	67 38 24.5	
25	349 22	6.7	2.8	27.2	2.9	33	. .	942	. .	940	. .	54.2	10 33 25.5	. .	+ 11.4	61 39 58.1	+ 0.6
26	348 8	9.9	4.8	28.8	5.9	34	. .	856	. .	886	. .	54.2	11 47 42.2	. .	+ 12.8	62 54 16.2	+ 0.2
27	52 6	8.5	4.7	29.1	4.0	36	595	595	595	. .	. .	54.2	307 50 7.7	. .	− 1 18.8	358 55 10.1	+ 1.5
28	342 14	4.6	0.1	24.5	0.3	37	. .	028	. .	022	. .	54.2	17 42 10.4	. .	+ 19.6	68 48 51.2	
29																	
30	348 40	1.1	26.4	21.3	26.7	35	. .	076	. .	070	. .	54.2	11 15 36.9	. .	+ 12.2	62 22 10.3	+ 1.6
31	338 30	9 28.5	23.2	17.9	23.0	34	. .	016	. .	016	. .	54.2	21 25 17.4	. .	+ 24.1	72 32 2.7	− 0.5
32	339 34	12.4	7.4	2.6	6.5	34	. .	. .	. .	924	922	54.2	20 21 45.4	. .	+ 22.8	71 28 29.4	− 0.4
33	342 58	1.5	27.2	20.9	25.1	35	. .	420	. .	416	. .	54.2	16 57 41.9	. .	+ 18.7	68 4 21.8	− 0.1
34	327 56	1.4	26.4	20.9	25.1	35	. .	882	. .	892	. .	54.2	31 59 48.7	. .	+ 38.4	83 6 48.3	− 0.7
35	332 14	9.8	5.3	0.5	3.8	37	. .	024	. .	990	. .	54.2	27 42 15.0	. .	+ 32.3	78 49 8.5	+ 1.9
36	340 8	13.9	11.4	2.6	7.5	36	685	. .	782	. .	858	54.2	19 48 15.4	. .	+ 22.2	70 54 58.8	
37	345 24	7.2	3.0	27.6	1.6	34	. .	902	. .	892	. .	54.2	14 31 40.1	. .	+ 16.0	65 38 17.3	+ 0.9
38	347 40	2.7	27.9	22.3	28.6	40	. .	124	. .	138	. .	54.2	12 16 56.1	. .	+ 13.4	63 23 30.7	+ 0.4
39	333 38	6.7	2.2	26.4	0.6	34	970	962	. .	958	958	54.2	26 17 40.2	. .	+ 30.5	77 24 31.9	+ 0.6
40	54 24	11 0.6	27.1	21.7	23.4	31	290	290	260	275	250	54.8	305 31 8.2	. .	− 1 24.4	356 36 5.0	+ 0.6
41	337 32	19.0	14.0	10.1	8.5	31	. .	055	. .	070	. .	54.8	22 22 52.4	. .	+ 24.8	73 29 38.4	+ 1.6
42	48 16	24.3	19.4	14.0	16.3	36	010	008	. .	010	008	54.8	311 40 13.9	. .	− 1 7.7	2 45 27.4	+ 0.3
43	341 48	15.6	11.7	6.8	6.0	35	. .	. .	. .	450	445	54.8	18 7 56.8	. .	+ 19.7	69 14 37.7	+ 1.3
44	348 6	21.9	17.9	11.8	10.2	33	. .	. .	. .	420	400	54.8	11 49 31.0	. .	+ 12.6	62 56 4.8	+ 3.0
45	342 44	20.2	16.2	11.0	15.9	31	570	. .	. .	. .	510	54.8	17 11 2.6	. .	+ 18.6	68 17 42.4	+ 1.3
46																	
47																	
48																	
49	333 24	15.8	10.5	6.5	5.8	35	. .	970	. .	980	. .	54.8	26 32 4.5	. .	+ 30.2	77 38 55.9	− 1.8
50	332 14	18.5	15.3	9.2	8.8	36	. .	350	. .	340	. .	54.8	27 42 13.5	. .	+ 31.7	78 49 6.4	− 0.2

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
2	29.730	66.2	
8	29.856	62.2	33.8
13	29.870	64.0	32.5
17	29.872	66.0	35.0
22	30.000	65.0	24.8
27	30.008	65.2	24.0
35	30.024	66.0	23.0
39	30.030	66.0	21.5
40	. .	. .	30.7
41	29.944	66.0	31.0
44	. .	. .	31.2
45	. .	. .	31.0
49	29.918	65.0	30.0
50	. .	. .	30.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
5	−15 30.2	+ 14 53.2	. .	− 0 37.0
9	− 6.2	+ 7.4	+ 0.1	+ 1.2
10	− 6.2	− 7.4	+ 0.1	− 13.5
14	− 5.4	. .	+ 0.1	− 5.3
23	− 0.5	+ 22.0	. .	+ 21.5
24	− 0.6	− 22.0	. .	− 22.6
28	− 0.2	. .	. .	− 0.2
36	−18 24.5	+ 14 59.0	. .	− 3 25.5

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Feb. 23	1	83 Cancri	S.	26.4	29.3	30.9	37.2	39.4	41.6	48.0	49.7	52.3	11 39.42	— 1.13	. .	+12.56	9 11 50.85	— 0.78
	2	ω Leonis	S.	13.0	15.7	17.3	23.5	25.6	27.7	33.9	35.4	38.1	21 25.58	— 1.25	. .	+12.56	9 21 36.89	— 0.75
	3	o Leonis	S.	56.0	58.6	0.2	6.5	8.5	10.7	16.8	18.5	21.0	34 8.53	— 1.24	. .	+12.56	9 34 19.85	— 0.77
	4	18 Leonis	S.	. .	. .	14.7	16.8	19.0	21.0	23.1	. .	. .	39 18.92	— 1.22	. .	+12.56	9 39 30.26	— 0.79
	5	π Leonis	S.	3.9	6.4	8.1	14.4	16.4	18.5	24.6	26.2	28.8	53 16.37	— 1.27	. .	+12.57	9 54 27.67	— 0.78
	6	α Leonis	S.	9.9	12.5	14.2	20.5	22.6	24.7	31.0	32.6	35.3	1 22.59	— 1.21	+12.63	+12.57	10 1 33.95	— 0.10
	7	γ^1 Leonis	S.	31.0	33.8	35.4	. .	. .	. .	52.8	54.5	57.2	12 44.12	— 1.09	+12.58	+12.57	10 12 55.60	— 0.03
	8	γ^2 Leonis	S.	. .	. .	40.0	42.2	44.4	46.6	48.9	. .	. .	12 44.42	— 1.09	. .	+12.57	10 12 56.90	+ 1.27
	9	Moon II . . .	S.	47.3	50.0	51.6	58.1	0.3	2.5	8.9	10.5	13.3	25 0.28	— 1.18	. .	+12.57	10 25 11.67	—64.74
	10	49 Leonis	S.	56.3	58.8	0.4	6.6	8.7	10.9	17.0	18.5	21.2	28 8.71	— 1.26	. .	+12.57	10 28 20.02	— 0.79
	11	l Leonis	S.	8.8	11.2	12.8	19.1	21.1	23.2	29.5	31.0	33.7	42 21.16	— 1.23	+12.52	+12.57	10 42 32.50	+ 0.05
25	12	75 Leonis	E.	19.4	22.0	23.6	29.6	31.6	33.7	39.8	41.3	43.9	10 31.66	— 1.39	. .	+12.62	11 10 42.89	— 0.76
	13	σ Leonis	E.	9.2	11.8	13.4	19.6	21.6	23.7	29.8	31.5	34.0	14 21.62	— 1.34	. .	+12.62	11 14 32.90	— 0.77
	14	τ Leonis	E.	58.5	1.0	2.6	8.8	10.8	12.9	19.0	20.5	23.3	21 10.82	— 1.38	+12.58	+12.62	11 21 22.06	+ 0.02
	15	v Leonis	E.	0.9	3.7	5.2	11.3	13.3	15.4	21.6	23.1	25.6	30 13.34	— 1.44	+12.53	+12.62	11 30 24.52	+ 0.05
	16	ν Leonis	E.	54.0	56.5	58.0	4.2	6.3	8.4	14.5	16.0	18.7	39 6.29	— 1.34	. .	+12.63	11 39 17.58	— 0.73
	17	β Leonis	E.	8.4	11.1	12.6	19.0	21.1	23.2	29.7	31.3	33.9	42 21.14	— 1.22	+12.62	+12.63	11 42 32.55	— 0.01
	18	o Virginis . . .	E.	. .	. .	. .	. .	. .	. .	39.0	40.5	43.1	58 30.69	— 1.31	+12.65	+12.63	11 58 42.01	— 0.04
	19	Moon II, S. . .	E.	45.9	48.5	50.1	56.4	58.6	0.7	6.9	8.4	11.0	58.50	— 1.39	. .	+12.64	12 3 9.75	—63.74
	20	η Virginis . . .	E.	58.5	1.4	2.9	9.0	11.0	13.0	19.2	20.6	23.3	13 10.99	— 1.44	+12.54	+12.64	12 13 22.19	+ 0.08
	21	θ Virginis . . .	E.	56.4	59.0	0.5	6.6	8.7	10.7	16.9	18.4	21.0	3 8.69	— 1.50	+12.71	+12.65	13 3 19.84	— 0.10
	22	Polaris, S. P. . .	E.	. .	. .	23.0	58.5	26.5	2.5	49.0	. .	. .	11 29.94	. .	. .	. .	. . . .	. .
	23	α Virginis . . .	E.	3.8	6.5	8.0	14.4	16.3	18.5	24.6	26.1	28.9	18 16.34	— 1.58	+12.76	+12.65	13 18 27.41	— 0.13
	24	α Aquilæ. . . .	F.	6.7	9.4	10.9	17.3	19.2	21.3	27.3	29.0	31.6	44 19.19	— 1.38	+13.02	+12.92	19 44 30.73	— 0.06
	25	Venus II, S. . .	F.	7.7	10.5	12.0	18.5	20.7	22.8	29.4	31.0	33.7	16 20.70	— 1.81	. .	+12.92	20 16 31.81	— 0.49
	26	Venus N. . . .	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
26	27	Polaris	F.	. .	. .	. .	. .	. .	. .	. .	8.0	54.0	10 21.45	+31.15	. .	+12.97	1 11 5.57	— 3.51
	28	Jupiter I, N. . .	F.	58.3	1.1	2.8	. .	. .	. .	20.5	22.1	24.9	28 11.62	— 1.10	. .	+13.01	7 28 23.53	. .
	29	Jupiter II, S. . .	F.	. .	. .	10.4	12.7	14.9	17.9	19.3	. .	. .	28 15.04	— 1.10	. .	+13.01	7 28 26.96	. .
	30	β Geminorum . .	F.	3.4	6.4	8.0	15.0	17.3	19.6	26.5	28.3	31.2	37 17.30	— 0.99	+13.06	+13.01	7 37 29.32	— 0.08
	31	ϕ Geminorum . .	F.	14.5	17.4	19.2	26.0	28.2	30.5	37.4	39.2	42.0	45 28.27	— 1.01	+12.95	+13.01	7 45 40.27	— 0.02
	32	λ Ursæ Minoris, S.P.	F.	. .	. .	38.0	48.0	0.0	15.0	26.0	. .	. .	52 1.40	—46.81	. .	+13.01	19 51 27.60	— 3.10
	33	Uranus I, N. . .	F.	8.9	11.9	13.4	. .	. .	. .	30.9	32.4	35.3	59 22.13	— 1.12	. .	+13.02	7 59 34.03	. .
	34	Uranus II, S. . .	F.	. .	. .	18.0	20.3	22.5	24.7	26.9	. .	. .	59 22.48	— 1.12	. .	+13.02	7 59 34.38	. .
	35	27 Cancri	F.	15.4	18.0	19.5	25.8	27.9	30.0	36.4	37.9	40.5	19 27.93	— 1.26	. .	+13.02	8 19 39.69	— 0.61
	36	29 Cancri	F.	4.9	7.5	9.0	15.5	17.5	19.6	26.0	27.5	30.2	21 17.52	— 1.23	. .	+13.02	8 21 29.31	— 0.62
	37	δ Cancri	F.	0.5	3.0	4.8	11.3	13.4	15.6	22.0	23.6	26.4	37 13.40	— 1.17	. .	+13.02	8 37 25.25	— 0.70
	38	o^1 Cancri	F.	42.6	45.4	47.0	53.3	55.4	57.5	4.0	5.5	8.3	49 55.44	— 1.21	. .	+13.02	8 50 7.25	— 0.71
	39	κ Cancri	F.	25.2	27.9	29.5	35.5	37.7	40.0	46.2	47.6	50.3	0 37.77	— 1.29	+12.97	+13.02	9 0 49.50	+ 0.04
	40	83 Cancri	F.	26.1	28.8	30.3	36.9	39.0	41.0	47.5	49.2	51.8	11 38.96	— 1.17	. .	+13.03	9 11 50.82	— 0.78
	41	μ Leonis	F.	4.0	6.8	8.5	15.5	17.6	20.0	26.9	28.6	31.0	45 17.66	— 1.02	+13.05	+13.03	9 45 29.67	— 0.03
	42	Ausonia . . .	F.	14.1	16.7	18.5	24.6	26.7	28.9	35.2	36.8	39.4	52 26.77	— 1.24	. .	+13.03	9 52 38.56	. .
	43	η Leonis	F.	. .	5.8	8.0	10.2	12.3	14.4	18.6	20.3	23.0	0 10.13	— 1.19	. .	+13.03	10 0 21.97	— 0.85
	44	α Leonis	F.	. .	. .	. .	. .	24.3	26.5	30.6	32.2	34.8	1 22.22	— 1.27	+13.07	+13.03	10 1 33.98	— 0.08
	45	32 Ursæ Majoris. .	F.	1.9	8.5	12.1	26.9	31.9	36.8	51.7	55.6	1.6	8 31.89	+ 0.46	. .	+13.03	10 8 45.38	— 0.01
	46	γ^1 Leonis	F.	30.6	33.3	35.0	41.6	43.8	45.9	52.5	54.0	56.7	12 43.71	— 1.13	+13.04	+13.04	10 12 55.62	— 0.02
	47	γ^1 Virginis . . .	F.	. .	. .	57.2	59.3	1.5	3.5	7.6	8.9	11.5	34 59.32	— 1.47	. .	+13.06	12 35 10.91	— 0.52
	48	38 Virginis . . .	F.	14.6	17.2	18.8	24.9	26.9	29.0	35.2	36.8	39.1	46 26.94	— 1.50	. .	+13.06	12 46 38.50	— 0.54
	49	Moon II, S. . .	F.	19.3	22.0	23.3	29.7	31.8	33.9	40.2	41.7	44.3	51 31.80	— 1.47	. .	+13.06	12 51 43.39	—64.07
	50	θ Virginis . . .	F.	56.0	58.6	0.2	6.4	8.4	10.5	16.6	18.2	20.8	3 8.41	— 1.54	+13.05	+13.06	13 3 19.93	— 0.03

4. Bisections at sets B and D.
42. Wire A used.
49. Bisections at wires II–VI.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	339 18	10.6	6.2	0.6	2.7	37	. .	996	. .	004	. .	54.8	20 38 31.0	. .	+ 22.8	71 45 15.0	— 1.4
2	330 40	19.2	13.8	10.0	14.5	36	. .	785	. .	823	. .	54.8	29 16 22.0	. .	+ 33.8	80 23 17.0	— 2.6
3	331 32	13.9	9.3	5.5	8.2	38	. .	688	. .	688	. .	54.8	28 24 45.8	. .	+ 32.6	79 31 39.6	— 2.6
4	333 26	21.0	16.8	12.3	15.7	32	550	. .	. .	. .	570	54.8	26 29 18.8	. .	+ 30.0	77 36 10.0	— 2.6
5	329 42	15.4	10.8	5.8	9.9	34	. .	434	. .	. .	450	54.8	30 13 41.8	. .	+ 35.1	81 20 38.1	— 3.0
6	333 38	12.6	8.4	4.0	1.8	34	. .	660	. .	652	. .	54.8	26 17 41.3	. .	+ 29.8	77 24 32.3	+ 0.9
7	341 32	10.9	6.8	1.2	3.6	36	442	. .	. .	. .	482	54.8	18 24 8.2	. .	+ 20.1	69 30 49.5	+ 4.7
8	341 32	10.9	6.8	1.2	3.6	36	. .	360	. .	354	. .	54.8	18 24 6.4	. .	+ 20.1	69 30 47.7	+ 2.9
9																	
10	330 22	13.8	9.8	4.6	6.4	37	. .	640	. .	648	. .	54.8	29 34 29.1	. .	+ 34.2	80 41 24.5	— 3.6
11	332 16	18.2	14.4	8.8	11.8	34	. .	975	. .	010	. .	54.8	27 39 53.0	. .	+ 31.6	78 46 45.8	+ 1.7
12	323 46	10 9.2	6.0	0.0	3.4	36	. .	582	. .	628	. .	54.3	36 10 8.6	. .	+ 44.2	87 17 14.0	— 4.1
13	327 46	10 8.5	4.5	28.5	27.5	33	. .	210	. .	270	. .	54.3	32 9 14.5	. .	+ 38.0	83 16 13.7	— 4.4
14	324 36	10 11.4	7.1	2.8	4.0	33	. .	355	. .	408	. .	54.3	35 19 20.7	. .	+ 42.9	86 26 24.8	+ 0.4
15	320 56	10 9.8	6.2	1.0	29.5	35	. .	715	. .	735	. .	54.3	38 59 54.5	. .	+ 49.0	90 7 4.7	— 0.6
16	328 18	10 15.2	11.0	5.3	9.1	36	. .	915	. .	945	. .	54.3	31 38 19.1	. .	+ 37.3	82 45 17.6	— 4.9
17	336 20	10 3.6	0.0	23.0	22.7	36	. .	632	. .	655	. .	54.3	23 36 1.9	. .	+ 26.5	74 42 49.6	+ 0.1
18	330 30	13.3	8.2	2.2	3.5	37	. .	. .	. .	960	965	54.3	29 26 31.6	. .	+ 34.2	80 33 27.0	+ 0.7
19	325 24	10 15.5	10.6	6.6	6.2	32	. .	650	875	300	. .	54.3	34 31 17.4	. .	+ 41.7	85 38 20.3	
20	321 6	10 14.4	9.3	4.5	7.3	36	. .	630	. .	642	. .	54.3	38 50 13.3	. .	+ 48.8	89 57 23.3	+ 0.6
21	316 12	10 10.0	4.7	1.0	3.8	36	. .	258	. .	280	. .	54.3	43 44 3.6	. .	+ 58.0	94 51 22.8	+ 1.4
22	52 24	10 11.7	7.3	1.2	3.5	38	920	. .	870	. .	885	54.3	307 32 45.1	. .	— 1 18.9	358 37 47.4	+ 0.3
23	310 34	10 9.3	4.3	28.5	1.7	36	. .	440	. .	445	. .	54.3	49 22 4.8	. .	+ 1 10.7	100 29 36.7	+ 2.0
24	329 34	7.4	2.6	29.1	1.6	33	. .	742	. .	720	. .	53.3	30 21 21.5	. .	+ 35.3	81 28 18.0	+ 1.1
25	301 30	0.7	24.3	21.6	26.0	33	162	. .	. .	. .	198	53.3	58 25 5.7	. .	+ 1 37.8	109 33 4.7	
26	301 30	0.7	24.3	21.6	26.0	32	. .	118	. .	120	. .	53.3	58 24 49.6	. .	+ 1 37.8	109 32 48.6	
27																	
28	343 28	6.0	1.6	26.0	29.0	38	600	610	. .	. .	. .	54.0	16 28 35.3	. .	+ 18.1	67 35 14.6	
29	343 28	6.0	1.6	26.0	29.0	41	. .	. .	. .	385	375	54.0	16 29 17.8	. .	+ 18.2	67 35 57.2	
30	349 22	3.4	29.0	24.2	27.2	34	200	195	. .	200	202	54.0	10 33 25.4	. .	+ 11.4	61 39 58.0	+ 0.8
31	348 8	7.9	4.0	28.1	2.0	34	990	990	. .	. .	. .	54.0	11 47 42.1	. .	+ 12.8	62 54 16.1	+ 0.3
32	52 6	8.7	4.3	29.0	2.6	36	500	490	482	472	480	54.0	307 50 5.2	. .	— 1 18.8	358 55 7.6	+ 0.2
33	342 16	6.7	2.5	26.3	0.7	38	900	. .	. .	. .	970	54.0	17 40 41.3	. .	+ 19.5	68 47 22.0	
34	342 16	6.7	2.5	26.3	0.7	39	. .	. .	. .	240	. .	54.0	17 40 44.6	. .	+ 19.5	68 47 25.3	
35	334 8	7.0	2.5	28.5	1.1	38	. .	834	. .	838	. .	54.0	25 48 40.3	. .	+ 29.6	76 55 31.1	— 1.3
36	335 40	4.9	0.2	25.4	27.3	33	. .	422	. .	420	. .	54.0	24 15 14.2	. .	+ 27.6	75 22 3.0	— 1.0
37	339 40	0.3	25.6	21.4	23.9	36	. .	320	. .	312	. .	54.0	20 15 54.6	. .	+ 22.6	71 22 38.4	— 0.5
38	336 52	4.0	29.9	24.5	26.5	38	. .	475	. .	468	. .	54.0	23 4 31.1	. .	+ 26.1	74 11 18.4	— 1.3
39	332 14	6.0	1.5	26.7	29.4	37	. .	232	. .	230	. .	54.0	27 42 14.2	. .	+ 32.2	78 49 7.6	+ 0.9
40	339 18	9.7	4.4	29.0	2.5	38	. .	066	. .	062	. .	54.0	20 38 30.1	. .	+ 23.1	71 45 14.4	— 1.3
41	347 38	9 28.6	23.8	17.8	22.3	32	. .	646	. .	652	. .	54.0	12 16 56.1	. .	+ 13.3	63 23 30.6	+ 0.7
42	335 16	9.2	5.0	0.3	1.2	40	. .	240	. .	238	. .	54.0	24 38 28.8	. .	+ 28.0	75 45 18.0	— 2.4
43	338 26	10.4	5.6	0.0	3.2	36	. .	. .	. .	590	584	54.0	21 30 8.2	. .	+ 24.0	72 36 53.4	— 2.7
44	333 38	2.1	26.2	20.6	25.2	35	. .	. .	. .	416	416	54.0	26 17 41.4	. .	+ 30.0	77 24 32.6	+ 1.2
45	26 46	7.0	3.1	27.5	0.3	33	. .	860	. .	830	. .	54.0	333 9 23.9	. .	— 30.8	24 15 14.3	— 0.4
46	341 32	5.7	1.6	25.6	28.5	36	. .	600	. .	606	. .	54.0	18 24 4.1	. .	+ 20.2	69 30 45.5	+ 0.8
47	320 18	11.0	5.2	1.0	4.4	34	. .	. .	. .	. .	740	54.0	39 37 40.3	. .	+ 50.8	90 44 52.3	— 4.7
48	318 12	9.2	4.0	29.4	1.6	37	. .	070	. .	050	. .	54.0	41 44 14.2	. .	+ 54.8	92 51 30.2	— 5.4
49	319 44	9.0	4.3	28.9	2.1	36	448	580	748	920	168	54.0	40 12 9.8	. .	+ 52.0	91 19 23.0	
50	316 12	6.6	2.2	25.8	0.2	36	. .	450	. .	450	. .	54.0	43 44 2.4	. .	+ 59.0	94 51 22.6	+ 1.2

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	29.905	. .	30.0
3	29.900	65.0	30.5
5	29.895	. .	. .
6	. .	. .	30.2
11	29.880	65.0	30.5
12	30.030	66.0	31.0
24	30.226	61.2	36.2
31	. .	. .	27.0
33	30.172	64.0	27.0
37	30.174	64.0	27.0
46	30.158	64.0	31.0
47	30.140	65.0	26.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
19	—31 41.7	— 15 21.4	. .	— 47 3.1
25	— 5.9	— 8.1	+ 0.1	— 13.9
26	— 5.9	+ 8.1	. .	+ 2.2
28	— 0.5	+ 21.3	. .	+ 20.8
29	— 0.5	— 21.3	. .	— 21.8
33	— 0.1	+ 1.7	. .	+ 1.5
34	— 0.2	— 1.6	. .	— 1.8
49	—36 27.1	— 15 29.6	. .	— 51 56.7

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s	s.
Feb. 26	1	Polaris, S. P. . .	F.	. .	. .	23.0	58.0	32.5	7.0	42.0	. .	. .	11 32.50	−36.67	. .	+13.06	1 11 8.89	+ 0.10
	2	*α* Virginis . . .	F.	3.6	6.4	7.8	14.0	16.2	18.3	24.5	26.0	28.6	18 16.16	— 1.62	+12.99	+13.06	13 18 27.60	+ 0.05
	3	*ε* Pegasi	S.	. .	36.4	38.4	40.5	42.6	44.7	48.6	50.4	52.8	37 40.48	— 1.31	+13.08	+13.09	21 3 52.26	+ 0.02
27	4	Sun I, S. . . .	S.	. .	. .	4.0	6.2	8.2	10.2	12.3	. .	. .	39 8.18	— 1.57	. .	+13.08	22 39 19.69	. .
	5	Sun II, N. . . .	S.	6.7	9.3	11.0	17.1	19.2	21.2	27.4	29.0	31.5	41 19.16	— 1.57	. .	+13.08	22 41 30.67	. .
	6	Polaris . . .	S.	. .	. .	33.5	0.0	24.0	49.0	16.0	. .	. .	10 24.50	+31.20	. .	+13.11	1 11 8.81	+ 0.31
	7	*α* Arietis	S.	30.8	33.6	35.4	42.0	44.2	46.4	53.0	54.7	57.4	59 44.17	— 1.10	+13.23	+13.12	1 59 56.19	— 0.10
	8	χ^2 Orionis . . .	S.	56.7	59.6	1.2	7.9	10.1	12.1	18.6	20.3	23.0	47 9.94	— 1.07	. .	+13.13	5 47 22.00	+ 0.10
	9	χ^1 Orionis . . .	S.	54.8	57.8	59.4	6.1	8.3	10.4	17.0	18.8	21.6	56 8.24	— 1.07	. .	+13.13	5 56 20.30	+ 0.05
	10	71 Orionis . . .	S.	54.0	56.7	58.4	4.8	7.0	9.2	15.7	17.2	19.9	7 6.99	— 1.08	. .	+13.13	6 7 19.04	— 0.01
	11	*μ* Geminorum . .	S.	47.6	50.4	52.1	58.8	1.0	3.2	10.0	11.5	14.3	15 0.99	— 1.02	+13.08	+13.13	6 16 13.10	+ 0.01
	12	*ν* Geminorum . .	S.	56.8	59.5	1.0	7.8	10.0	12.2	18.6	20.2	22.9	21 9.89	— 1.06	. .	+13.13	6 21 21.96	— 0.09
	13	52 Geminorum . .	S.	26.9	29.7	31.4	38.0	40.3	42.8	49.6	51.2	53.9	6 40.42	— 0.97	. .	+13.14	7 6 52.59	— 0.34
	14	56 Geminorum . .	S.	. .	. .	7.5	9.6	12.0	14.1	16.4	. .	. .	14 11.92	— 1.05	. .	+13.04	7 14 23.91	— 0.36
	15	α^1 Geminorum . .	S.	59.0	1.9	3.9	. .	. .	. .	23.0	25.0	28.0	26 13.47	— 0.83	. .	+13.04	7 26 25.68	— 0.34
	16	α^2 Geminorum . .	S.	. .	. .	9.3	11.7	14.0	16.4	18 9	. .	. .	26 14.06	— 0.83	+13.03	+13.04	7 26 26.27	+ 0.25
	17	*φ* Geminorum . .	S.	. .	. .	23.2	25.6	27.8	30.3	32.6	. .	. .	45 27.90	— 0.94	+13.22	+13.04	7 45 40.00	— 0.26
	18	Polaris, S. P. . .	S.	. .	. .	21.0	54.0	29.0	. .	39.0	. .	. .	11 29.38	−34.75	. .	+13.16	1 11 7.79	— 0.45
	19	Moon II, S. . .	S.	. .	. .	54.7	56.9	58.9	1.0	3.0	. .	. .	40 58.90	— 1.48	. .	+13.16	13 41 10.58	−65.07
	20	95 Virginis . . .	S.	. .	. .	41.2	43.2	45.4	47.5	49.5	. .	. .	59 45.36	— 1.51	. .	+13.16	13 59 57.01	— 0.27
	21	*α* Bootis	S.	24.5	27.3	29.0	35.5	37.6	39.8	46.4	48.0	50.6	9 37.63	— 1.06	+13.21	+13.16	14 9 49.73	— 0.05
	22	α^1 Libræ	S.	. .	. .	20.9	23.0	25.1	27.3	29.4	. .	. .	43 25.14	— 1.61	. .	+13.16	14 43 36.69	. .
	23	α^2 Libræ	S.	. .	. .	32.3	34.4	36.5	38.7	40.8	. .	. .	43 36.54	— 1.61	+13.11	+13.16	14 43 48.09	+ 0.04
	24	*β* Libræ	S.	. .	. .	51.4	53.4	55.5	57.6	59.6	. .	. .	9 55.50	— 1.51	+13.20	+13.16	15 10 7.15	— 0.04
Mar. 1	25	Sun I, N. . . .	F.	9.9	12.5	13.9	20.2	22.1	24.2	30.4	32.0	34.5	50 22.19	— 0.91	. .	+13.34	22 50 34.62	. .
	26	Sun II, S. . . .	F.	20.5	23.0	24.6	30.9	32.9	35.0	41.1	42.6	45.3	52 32.88	— 0.91	. .	+13.34	22 52 45.31	. .
	27	*α* Andromedæ . .	F.	. .	. .	. .	. .	. .	. .	41.3	43.2	46.0	1 32.07	— 0.84	+13.37	+13.34	0 1 44.57	— 0.01
	28	*γ* Pegasi	F.	12.0	14.5	16.4	22.5	24.6	26.7	33.0	34.4	37.4	6 24.61	— 0.86	+13.32	+13.34	0 6 37.09	+ 0.02
	29	Polaris . . .	F.	. .	. .	0.5	25.0	51.0	16.0	41.0	. .	. .	10 50.70	. .	. .	. .	. . . .	. .
4	30	Moon II . . .	E.	24.7	27.4	29.4	36.4	38.8	41.1	47.8	49.6	52.6	37 38.64	— 0.78	. .	+13.66	19 37 51.52	−75.14
	31	*α* Aquilæ . . .	E.	5.7	8.3	9.8	16.0	18.1	20.2	26.4	27.9	30.5	44 18.10	— 0.74	+13.66	. .	. . . .	. .
	32	*α* Cygni	F.	32.2	35.5	37.6	46.2	49.3	52.0	0.9	2.9	6.6	36 49.24	— 0.66	. .	+13.65	20 37 2.23	— 0.02
	33	*ε* Pegasi	F.	27.0	29.7	31.1	37.4	39.5	41.6	47.8	49.2	51.9	37 39.47	— 0.73	+13.60	+13.65	21 37 52.39	+ 0.06
5	34	*α* Andromedæ . .	F.	17.9	20.8	22.5	29.4	31.6	34.0	40.5	42.9	45.5	1 31.68	— 0.70	+13.62	+13.63	0 1 44.61	+ 0.03
	35	Polaris	F.	. .	. .	. .	23.0	49.0	14.0	39.0	. .	. .	10 48.42	+ 3.29	. .	+13.63	1 11 5.34	+ 0.38
	36	*λ* Geminorum . .	F.	18.7	21.4	23.0	29.3	31.5	33.6	40.1	41.6	44.3	10 31.50	— 0.71	. .	+13.60	7 10 44.39	— 0.25
	37	63 Geminorum . .	F.	. .	. .	51.4	53.5	55.7	58.0	0.2	. .	. .	19 55.76	— 0.70	. .	+13.60	7 20 8.66	— 0.31
	38	Jupiter I, N. . .	F.	27.2	30.0	31.6	. .	. .	. .	49.4	51.0	53.8	26 40.50	— 0.70	. .	+13.60	7 26 53.40	. .
	39	Jupiter II, S. . .	F.	. .	. .	39.1	41.4	43.6	45.8	48.0	. .	. .	26 43.58	— 0.70	. .	+13.60	7 26 56.48	. .
	40	*α* Canis Minoris .	F.	11.1	13.7	15.4	21.5	23.5	25.5	31.7	33.2	35.8	32 23.49	— 0.73	+13.54	+13.60	7 32 36.36	— 0.10
	41	*β* Geminorum . .	F.	2.5	5.3	7.0	14.1	16.4	18.8	25.7	27.4	30.3	37 16.39	— 0.69	+13.56	+13.60	7 37 29.30	+ 0.01
	42	*φ* Geminorum . .	F.	13.5	16.4	18.0	24.8	27.3	29.5	36.4	38.1	40.9	45 27.21	— 0.70	−13.59	+13.60	7 45 40.11	— 0.07
	43	*λ* Ursæ Minoris, S. P.	F.	. .	. .	10.0	14.0	30.0	44.0	. .	. .	. .	51 30.50	— 6.51	. .	+13.60	19 51 37.59	+ 1.17
	44	Uranus I, C. . .	F.	12.6	15.5	16.9	. .	. .	. .	34.6	36.0	39.0	58 25.77	— 0.70	. .	+13.60	7 58 38.67	. .
	45	Uranus II . . .	F.	. .	. .	21.7	24.0	26.0	28.3	30.4	. .	. .	58 26.08	— 0.70	. .	+13.60	7 58 38.98	. .
	46	*α* Hydræ	F.	. .	. .	. .	. .	. .	. .	14.0	15.3	18.0	21 5.63	— 0.74	+13.65	+13.59	9 21 18.48	— 0.09

14. Bisections at wires B_1 and D_3.
19. Bisections at wires B_1, C_1, C_3, C_5, and D_3.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	52 24	9.2	4.5	28.9	2.4	39	102	108	108	114	120	54.0	307 32 46.1	. .	− 1 20.2	358 37 46.6	− 0.3
2	310 34	4.7	28.9	23.8	28.2	36	. .	718	. .	710	. .	54.0	49 22 4.1	. .	+ 1 12.0	100 29 37.3	+ 2.5
3	330 20	10 14.3	9.8	4.0	7.0	35	. .	. .	. .	508	486	52.9	29 35 54.3	. .	+ 33.9	80 42 49.4	− 0.7
4	312 24	10 3.8	0.4	26.8	27.3	39	676	602	. .	. .	. .	52.9	47 32 48.3	. .	+ 1 5.1	98 40 14.6	
5	312 56	10 5.5	1.8	28.2	29.7	38	. .	. .	. .	235	255	52.9	47 0 29.4	794	+ 1 3.9	98 7 54.5	
6	49 38	10 5.3	2.5	28.4	29.8	32	457	490	542	480	490	52.9	310 17 1.1	. .	− 1 10.6	1 22 11.9	− 1.4
7	343 54	12.1	9.5	4.9	7.1	36	100	997	. .	141	101	52.9	16 2 3.2	. .	+ 17.2	67 8 41.6	+ 1.4
8	340 46	16.1	11.6	6.7	5.4	35	. .	490	. .	480	. .	52.5	19 9 54.9	818	+ 20.8	70 16 36.9	− 1.2
9	341 10	13.4	8.7	3.7	4.5	32	. .	970	. .	010	. .	52.5	18 45 14.2	820	+ 20.4	69 51 55.8	− 1.3
10	340 14	14.9	9.6	5.5	8.9	33	. .	542	. .	492	. .	52.5	19 41 24.5	823	+ 21.5	70 48 7.2	− 1.1
11	343 38	12.3	7.0	2.1	3.7	38	. .	812	. .	820	. .	52.5	16 18 42.5	828	+ 17.6	67 25 21.4	+ 0.7
12	341 20	11.8	7.0	2.0	1.5	35	390	315	. .	420	390	52.5	18 35 49.0	. .	+ 20.2	69 42 30.4	+ 1.4
13	346 8	13.1	8.3	3.2	1.9	32	. .	268	. .	298	. .	52.5	13 47 2.5	843	+ 14.8	64 53 38.5	− 2.6
14	341 44	14.7	10.1	5.0	6.0	37	. .	050	. .	080	. .	52.5	18 12 18.1	844	+ 19.8	69 18 59.1	+ 1.2
15																	
16																	
17	348 8	13.5	8.8	3.9	4.7	34	. .	. .	. .	772	782	52.5	11 47 41.9	851	+ 15.9	62 54 18.0	+ 2.4
18	52 24	10.9	7.2	1.0	4.7	39	925	908	862	848	. .	54.0	307 32 44.5	870	− 1 18.9	358 37 46.8	+ 0.2
19	313 58	10 2.9	28.0	23.6	25.9	33	550	722	718	808	898	54.0	45 57 17.2	872	+ 1 2.8	97 4 41.2	
20	312 22	10 9.2	4.7	29.6	1.6	38	. .	. .	. .	. .	870	54.0	47 34 42.0	. .	+ 1 6.5	98 42 9.7	− 3.8
21	340 54	10 7.4	3.4	28.1	29.9	38	. .	. .	. .	142	062	54.0	19 2 28.9	873	+ 21.0	70 9 11.1	+ 0.4
22	305 34	10.0	4.4	29.4	2.4	. .	. .	602	. .	612	. .	54.0	54 20 4.9	880	+ 1 24.9	105 27 51.0	
23																	
24	312 8	9.7	3.8	29.1	1.6	32	. .	. .	. .	. .	785	54.0	47 47 8.3	880	+ 1 7.1	98 54 36.6	+ 1.2
25	314 4	3.2	29.2	27.2	25.3	37	438	454	. .	. .	. .	54.7	45 52 15.5	. .	+ 1 1.8	96 59 38.5	
26	313 32	1.5	29.1	26.5	25.2	38	. .	. .	. .	558	632	54.7	46 24 33.3	820	+ 1 2.9	97 31 57.4	
27	349 26	9 28.3	25.5	23.3	20.8	38	. .	. .	. .	916	920	54.7	10 30 34.5	. .	+ 11.1	61 37 6.8	+ 2.1
28	335 30	9 26.1	23.3	21.6	18.5	33	. .	034	. .	034	. .	54.7	24 25 1.9	. .	+ 27.1	75 31 50.2	+ 1.0
29	49 38	2.1	0.5	26.7	25.2	32	666	672	675	675	675	54.7	310 17 2.7	. .	− 1 10.3	1 22 13.6	− 0.5
30																	
31	329 34	12.2	8.7	4.5	3.8	33	. .	190	. .	180	. .	55.4	30 21 19.8	990	+ 36.7	81 28 17.7	+ 0.1
32	5 52	3.7	0.7	25.0	24.3	38	. .	670	. .	726	. .	55.4	354 4 36.0	968	− 6.5	45 10 50.7	− 0.1
33	330 20	3.1	0.1	26.2	25.9	35	. .	920	. .	914	. .	55.4	29 35 53.3	956	+ 35.5	80 42 50.0	− 0.6
34	349 26	29.0	25.9	21.3	24.6	38	. .	724	. .	730	. .	55.4	10 30 33.0	. .	+ 11.5	61 37 5.7	+ 0.4
35	49 38	3.1	27.9	23.5	25.9	32	. .	900	885	785	784	55.4	310 17 4.9	915	− 1 12.5	1 22 13.6	− 1.3
36	337 48	1.2	26.2	21.2	22.5	32	. .	950	. .	954	. .	55.0	22 7 3.8	968	+ 25.5	73 13 50.5	+ 0.3
37	342 44	0.7	25.9	20.8	23.1	32	. .	. .	. .	664	690	55.0	17 10 59.5	. .	+ 19.4	68 17 40.1	+ 1.8
38	343 30	8.9	4.8	29.5	29.3	32	700	. .	. .	. .	730	55.0	16 25 8.2	. .	+ 18.5	67 31 47.9	
39	343 30	8.9	4.8	29.5	29.3	35	. .	468	. .	472	. .	55.0	16 25 50.4	. .	+ 18.5	67 32 30.1	
40	326 36	2.5	28.4	23.5	25.5	36	290	290	. .	290	298	55.0	33 19 57.3	. .	+ 41.3	84 26 59.8	+ 0.4
41	349 22	10 17.8	12.7	9.5	8.6	33	. .	. .	. .	180	180	55.0	10 33 24.3	. .	+ 11.7	61 39 57.2	+ 0.6
42	348 8	8.8	5.1	29.5	0.2	34	. .	760	. .	768	. .	55.0	11 47 39.9	. .	+ 13.1	62 54 14.2	− 0.9
43	52 6	5.7	1.5	26.5	29.1	36	670	564	556	568	. .	55.0	307 50 4.9	. .	− 1 20.9	88 55 5.2	− 0.4
44	342 18	4.9	0.8	25.7	27.7	37	. .	158	. .	150	. .	55.0	17 38 12.9	976	+ 20.0	68 44 54.1	
45																	
46																	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	30.130	65.0	23.0
3	. .	. .	39.5
4	. .	. .	41.2
6	. .	. .	44.7
7	29.970	65.5	44.2
10	. .	. .	31.0
12	29.954	67.0	
14	. .	. .	28.0
17	29.979	66.0	27.3
18	. .	. .	27.0
20	29.988	65.0	
21	. .	. .	25.8
24	30.000	64.5	25.1
26	30.140	65.0	37.5
28	30.136	65.0	39.5
31	30.192	59.0	13.0
32	30.192	60.0	17.0
33	. .	. .	18.3
35	. .	. .	25.3
36	30.148	67.0	14.8
44	. .	. .	13.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
4	− 6.6	− 16 10.0	. .	− 16 16.6
5	− 6.5	+ 16 10.0	. .	+ 16 3.5
19	−40 59.0	− 15 37.8	. .	− 56 36.8
25	− 6.4	+ 16 9.4	. .	+ 16 3.0
26	− 6.5	− 16 9.4	. .	− 16 15.9
38	− 0.5	+ 21.1	. .	+ 20.6
39	− 0.5	− 21.1	. .	− 21.6
44	− 0.2	. .	. .	− 0.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Correction.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Mar. 5	1	*o* Leonis	F.	54.4	57.2	58.6	5.0	7.0	9.0	15.1	16.7	19.4	34 6.93	— 0.72	. .	+13.59	9 34 19.80	— 0.15
	2	*ε* Leonis	F.	. .	. .	. .	. .	25.0	27.4	31.7	33.5	36.3	38 22.81	— 0.70	+13.68	+13.59	9 38 35.70	— 0.15
	3	Ausonia	F.	27.8	30.2	32.0	38.3	40.5	42.5	48.9	50.7	53.0	44 40.43	— 0.72	. .	+13.59	9 44 53.30	. .
6	4	*ζ* Cygni	S.	. .	. .	. .	. .	. .	19.3	24.0	25.7	28.7	7 14.58	— 0.73	+13.78	+13.71	21 7 27.56	— 0.06
	5	Sun I	S.	45.3	47.8	49.4	55.4	57.6	59.6	5.5	7.4	9.8	7 57.53	— 0.77	. .	+13.72	23 8 10.48	. .
	6	Sun II	S.	. .	. .	3.2	5.4	7.4	9.5	11.5	. .	. .	10 7.40	— 0.77	. .	+13.72	23 10 20.35	. .
	7	Polaris	S.	. .	. .	. .	. .	35.0	5.0	20.0	15.5	. .	10 44.20	+ 2.48	. .	+13.73	1 11 2.41	— 1.96
	8	*β* Arietis	S.	6.8	9.4	11.2	17.5	19.9	22.0	28.4	30.1	32.9	47 19.80	— 0.75	+13.79	+13.74	1 47 32.79	— 0.03
	9	*α* Arietis	S.	29.9	32.6	34.4	41.0	43.3	45.5	52.0	53.8	56.6	59 43.23	— 0.75	+13.72	+13.74	1 59 56.22	+ 0.03
	10	*δ* Ursæ Minoris, S. P.	S.	. .	. .	. .	. .	22.5	12.0	2.0	36.3	55.0	13 20.90	— 1.76	. .	+13.76	18 13 32.90	— 0.62
	11	26 Geminorum	S.	. .	. .	39.9	42.1	44.2	46.5	48.5	. .	. .	34 44.24	— 0.78	. .	+13.76	6 34 57.22	— 0.04
	12	51 Cephei	S.	. .	. .	. .	. .	19.0	0.5	27.5	58.3	50.0	39 37.92	+ 0.36	. .	+13.76	6 39 52.04	+ 1.12
	13	*ζ* Geminorum	S.	. .	. .	14.0	16.0	18.3	20.5	22.6	. .	. .	56 18.28	— 0.78	. .	+13.76	6 56 31.26	— 0.16
	14	48 Geminorum	S.	13.5	16.4	18.0	25.0	27.1	29.3	36.0	37.8	40.6	4 27.08	— 0.78	. .	+13.76	7 4 40.06	— 0.22
	15	δ^2 Geminorum	S.	2.7	5.3	7.0	13.7	15.9	18.1	24.7	26.5	29.1	12 15.89	— 0.78	+13.75	+13.76	7 12 28.87	— 0.05
	16	Jupiter I, N.	S.	19.5	. .	23.9	. .	. .	. .	41.8	43.4	46.1	26 32.84	— 0.78	. .	+13.76	7 26 45.82	. .
	17	Jupiter II, S.	S.	. .	. .	31.7	33.8	36.0	38.2	40.4	. .	. .	26 36.02	— 0.78	. .	+13.76	7 26 49.00	. .
	18	*α* Canis Minoris	S.	10.5	13.5	15.0	21.4	23.4	25.4	31.7	33.1	36.0	32 23.33	— 0.80	+13.76	+13.76	7 32 36.29	— 0.16
	19	*β* Geminorum	S.	2.0	5.1	7.0	13.9	16.2	18.6	25.5	27.4	30.2	37 16.21	— 0.77	+13.81	+13.77	7 37 29.21	— 0.07
	20	Uranus I, C.	S.	6.3	9.2	10.8	. .	. .	. .	28.5	30.0	32.9	58 19.62	— 0.78	. .	+13.77	7 58 32.61	. .
	21	Uranus II	S.	. .	. .	15.6	17.7	20.0	22.2	24.4	. .	. .	58 19.98	— 0.78	. .	+13.77	7 58 32.97	. .
	22	60 Cancri	S.	31.2	33.8	35.5	41.6	43.9	46.0	52.2	54.0	56.3	48 43.83	— 0.79	. .	+13.77	8 48 56.81	— 0.64
	23	*α* Cancri	S.	4.2	6.9	8.5	14.8	16.7	18.9	25.2	26.8	29.5	51 16.83	— 0.79	. .	+13.77	8 51 29.81	— 0.65
	24	*κ* Cancri	S.	23.9	26.6	28.2	34.5	36.5	38.6	44.9	46.6	49.0	0 36.53	— 0.78	+13.66	+13.77	9 0 49.52	+ 0.10
	25	83 Cancri	S.	. .	. .	33.6	35.8	38.0	40.2	42.3	. .	. .	11 37.98	— 0.78	. .	+13.77	9 11 50.97	— 0.75
	26	*o* Leonis	S.	54.4	56.9	58.5	4.9	6.9	9.0	15.2	16.7	19.4	34 6.88	— 0.79	. .	+13.77	9 34 19.86	— 0.76
12	27	*ν* Geminorum	E.	54.9	57.6	59.4	5.9	8.0	10.2	16.8	18.5	21.0	21 8.06	— 0.92	. .	+14.47	6 21 21.61	+ 0.15
	28	*γ* Geminorum	E.	52.4	55.1	56.8	3.2	5.3	7.4	13.9	15.4	8.1	30 5.29	— 0.93	+14.58	+14.47	6 30 18.83	— 0.14
	29	51 Cephei	E.	. .	. .	8.5	51.0	33.0	15.0	57.5	. .	. .	39 33.00	+ 1.66	. .	+14.47	6 39 49.13	+ 0.82
	30	*ω* Geminorum	E.	9.7	12.5	14.3	20.9	23.1	25.4	32.1	33.8	36.7	54 23.17	— 0.91	. .	+14.47	6 54 36.73	— 0.06
	31	*ζ* Geminorum	E.	. .	. .	15.1	17.4	19.6	21.8	26.2	27.9	30.5	56 17.45	— 0.92	. .	+14.47	6 56 31.00	— 0.07
	32	52 Geminorum	E.	. .	27.9	29.7	36.4	38.7	41.0	47.7	. .	52.3	6 38.70	— 0.91	. .	+14.47	7 6 52.26	— 0.14
	33	*λ* Geminorum	E.	17.9	20.6	22.2	28.7	30.8	32.9	39.3	41.0	43.7	10 30.79	— 0.93	. .	+14.47	7 10 44.33	— 0.14
	34	*δ* Geminorum	E.	. .	. .	10.6	13.0	15.2	17.4	19.6	. .	. .	12 15.16	— 0.91	+14.51	+14.47	7 12 28.72	— 0.10
	35	Jupiter I, S.	E.	50.6	53.3	55.0	. .	. .	. .	12.8	14.4	17.2	26 3.88	— 0.91	. .	+14.48	7 26 17.45	. .
	36	Jupiter II, N.	E.	. .	. .	2.6	4.8	7.0	9.3	11.6	. .	. .	26 7.06	— 0.91	. .	+14.48	7 26 20.63	. .
	37	*α* Canis Minoris	E.	10.2	13.0	14.5	20.6	22.7	24.7	31.0	32.4	35.0	32 22.68	— 0.96	+14.49	+14.48	7 32 36.20	— 0.17
	38	*β* Geminorum	E.	1.4	4.5	6.3	13.3	15.5	17.8	25.0	26.5	29.5	37 15.53	— 0.90	+14.52	+14.48	7 37 29.11	— 0.07
	39	*φ* Geminorum	E.	12.5	15.4	17.4	24.2	26.5	28.7	35.6	37.5	40.3	45 26.46	— 0.90	+14.46	+14.48	7 45 40.04	— 0.06
	40	*λ* Ursæ Minoris, S. P.	E.	. .	. .	15.0	26.0	37.0	46.0	0.0	. .	. .	51 36.80	— 7.56	. .	+14.48	19 51 43.72	+ 1.13
	41	Uranus I, N.	E.	33.2	36.0	37.6	. .	. .	. .	55.0	56.8	59.4	57 46.33	— 0.92	. .	+14.48	7 57 59.89	. .
	42	Uranus II, S.	E.	. .	. .	42.3	44.4	46.7	48.9	51.2	. .	. .	57 46.70	— 0.92	. .	+14.48	7 58 0.26	. .
	43	*o* Cancri	E.	51.7	54.4	56.0	2.5	4.6	6.8	13.3	15.0	17.6	24 4.66	— 0.92	. .	+14.48	8 24 18.22	— 0.52
	44	*γ* Cancri	E.	26.4	29.1	30.9	37.4	39.6	41.8	48.4	50.0	52.9	35 39.61	— 0.92	. .	+14.48	8 35 53.17	— 0.59
	45	*ε* Hydræ	E.	34.5	37.0	38.6	44.8	46.9	49.0	55.0	56.8	59.3	39 46.88	— 0.95	+14.40	+14.49	8 39 0.42	+ 0.05
	46	*κ* Cancri	E.	23.5	26.0	27.6	34.0	36.0	38.0	44.4	45.9	48.5	0 35.99	— 0.94	+14.32	+14.49	9 0 49.54	+ 0.16
	47	83 Cancri	E.	24.4	27.0	28.7	35.0	37.3	39.4	46.0	47.7	50.3	11 37.31	— 0.92	. .	+14.49	9 11 50.88	— 0.71
	48	1 Draconis	E.	. .	. .	2.3	17.0	31.0	46.0	0.7	. .	. .	18 31.40	— 0.08	. .	+14.49	9 18 45.81	— 0.07
	49	*α* Hydræ	E.	52.6	55.1	56.7	3.0	5.0	7.0	13.2	14.6	17.4	21 4.96	— 0.99	+14.53	+14.49	9 21 18.46	— 0.07
	50	*h* Leonis	E.	40.5	43.0	44.6	51.0	53.0	55.0	1.0	2.8	5.4	24 52.92	— 0.94	. .	+14.49	9 25 6.47	— 0.71

3. Wire A used.
11, 13, 50. Bisections at sets B and D.
48. Bisections at wires C_1 and C_5.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	331 32	9 27.0	22.9	18.0	18.8	39	. .	640	. .	650	. .	55.0	28 24 43.0	988	+ 34.2	79 31 38.4	— 2.7
2	345 24	0.2	26.0	21.0	22.3	35	. .	. .	. .	140	128	55.0	14 31 37.0	. .	+ 16.4	65 38 14.6	— 0.9
3	335 36	0.6	26.3	21.8	22.1	36	. .	912	. .	880	. .	55.0	24 19 29.8	986	+ 28.5	75 26 19.5	— 2.4
4																	
5																	
6																	
7																	
8																	
9																	
10	54 24	11.1	7.8	3.7	3.4	32	388	382	. .	. .	398	55.8	305 31 7.1	. .	— 1 25.8	356 36 2.5	— 0.2
11	338 50	10 1.3	26.8	22.8	24.5	40	. .	960	. .	988	. .	55.8	21 7 8.9	910	+ 23.8	72 13 53.9	+ 0.8
12																	
13	341 48	10 24.1	20.0	16.2	15.7	34	. .	707	. .	727	. .	55.8	18 7 55.4	913	+ 20.2	69 14 36.8	+ 1.7
14	345 22	21.0	16.0	12.0	12.5	31	020	. .	. .	. .	024	55.8	14 32 55.4	914	+ 16.0	65 39 32.6	+ 2.7
15	343 16	23.7	18.2	13.8	16.3	36	. .	. .	. .	488	508	55.8	16 40 21.9	. .	+ 18.4	67 47 1.5	+ 0.8
16	343 32	24.3	19.7	15.7	15.9	38	260	. .	. .	. .	354	55.8	16 24 50.8	914	+ 18.1	67 31 30.1	
17	343 32	24.3	19.7	15.7	15.9	41	. .	480	. .	098	. .	55.8	16 25 36.4	. .	+ 18.2	67 32 15.8	
18	326 36	23.8	19.0	16.1	16.5	34	. .	790	. .	840	. .	55.8	33 19 56.8	. .	+ 40.5	84 26 58.5	— 0.9
19																	
20	342 18	10 13.5	8.2	4.1	7.1	35	622	642	. .	664	660	55.8	17 37 59.2	917	+ 19.6	68 44 40.0	
21																	
22	333 10	26.9	22.5	19.2	17.2	36	161	162	. .	. .	. .	55.8	26 46 20.3	925	+ 31.2	77 53 12.7	— 1.8
23	333 24	25.7	20.9	18.1	18.4	35	. .	120	. .	130	. .	55.8	26 32 3.5	925	+ 30.8	77 38 55.5	— 1.8
24	332 14	20.3	16.2	12.6	12.7	36	. .	133	. .	143	. .	55.8	27 42 13.8	925	+ 32.4	78 49 7.4	+ 0.7
25	339 18	24.9	20.3	16.6	14.9	36	. .	. .	. .	852	842	55.8	20 38 28.6	925	+ 23.3	71 45 12.9	— 1.0
26	331 32	27.1	22.3	19.4	16.5	37	685	705	. .	765	725	55.8	28 24 44.0	. .	+ 33.4	79 31 38.6	— 2.7
27	341 20	21.2	15.2	12.7	11.5	34	. .	660	. .	672	. .	55.6	18 35 50.7	. .	+ 20.5	69 42 32.4	+ 1.8
28	337 32	22.2	17.8	14.2	15.8	30	. .	650	. .	642	. .	55.6	22 22 51.4	878	+ 25.1	73 29 37.7	+ 1.2
29	48 16	18.0	14.8	11.7	11.5	. .	090	. .	. .	. .	020	55.6	311 40 11.0	. .	— 1 8.4	2 45 23.8	— 0.5
30	345 26	14.2	10.5	7.5	7.6	34	. .	048	. .	090	. .	55.6	14 29 36.4	. .	+ 15.8	65 36 13.4	+ 3.1
31	341 48	10 22.0	15.2	12.8	13.3	34	. .	. .	. .	950	970	55.6	18 7 55.9	. .	+ 20.0	69 14 37.1	+ 1.9
32	346 8	18.0	13.2	9.7	10.0	31	. .	672	. .	730	. .	55.6	13 47 2.8	. .	+ 15.0	64 53 39.0	+ 3.2
33	337 50	20.0	14.7	9.1	9.8	39	. .	550	. .	569	. .	55.6	22 7 4.2	. .	+ 24.8	73 13 50.2	+ 0.5
34	343 16	19.0	14.6	8.8	11.7	36	. .	. .	. .	825	850	55.6	16 40 22.5	. .	+ 18.3	67 47 2.0	+ 1.5
35	343 32	18.0	13.3	9.7	7.2	36	985	. .	. .	. .	000	55.6	16 24 23.6	. .	+ 18.0	67 31 2.8	
36	343 32	18.0	13.3	9.7	7.2	34	. .	348	. .	350	. .	55.6	16 23 42.8	. .	+ 18.0	67 30 22.0	
37	326 36	21.0	15.3	13.2	15.0	35	. .	078	. .	063	. .	55.6	33 19 57.8	. .	+ 40.2	84 26 59.2	— 0.3
38	349 22	20.7	14.6	13.0	8.8	32	. .	910	. .	955	. .	55.6	10 33 23.3	. .	+ 11.4	61 39 55.9	— 0.2
39	348 8	22.8	19.5	16.0	14.7	33	. .	800	. .	792	. .	55.6	11 47 40.5	890	+ 12.8	62 54 14.5	— 0.1
40	52 6	20.7	15.2	12.2	12.7	35	360	. .	400	. .	400	55.6	307 50 1.4	. .	— 1 18.6	358 55 4.0	0.0
41	342 20	19.8	13.2	9.8	10.2	37	510	. .	. .	. .	522	55.6	17 36 32.8	. .	+ 19.4	68 43 13.4	
42	342 20	19.8	13.2	9.8	10.2	37	. .	810	. .	772	. .	55.6	17 36 36.9	. .	+ 19.4	68 43 17.5	
43	339 34	10 27.5	23.8	18.5	16.8	33	. .	815	. .	830	. .	55.6	20 21 44.3	. .	+ 22.7	71 28 28.2	+ 0.3
44	342 58	17.8	12.6	9.1	11.0	34	. .	260	. .	220	. .	55.6	16 57 41.7	. .	+ 18.7	68 4 21.6	+ 1.0
45	327 56	14.0	9.0	5.5	6.7	35	. .	130	. .	120	. .	55.6	31 59 51.4	. .	+ 38.3	83 6 50.9	+ 1.6
46	332 14	7.5	4.1	0.0	29.5	36	. .	975	. .	038	. .	55.6	27 42 14.3	902	+ 32.2	78 49 7.7	+ 1.1
47	339 18	13.2	9.5	5.0	2.8	37	. .	645	. .	612	. .	55.6	20 38 28.7	. .	+ 23.1	71 45 13.0	— 0.7
48	42 54	10 10.4	8.0	4.8	5.8	32	. .	160	. .	185	. .	55.6	317 1 4.5	. .	— 57.2	8 6 28.5	+ 0.8
49	312 58	17.0	12.3	9.7	9.0	39	. .	162	. .	130	. .	55.6	46 58 56.3	. .	+ 1 5.7	98 6 23.2	+ 0.2
50	331 20	17.4	12.7	9.3	7.7	37	. .	005	. .	060	. .	55.6	28 36 23.6	. .	+ 33.5	79 43 18.3	— 2.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	. .	. .	11.2
3	30.148	66.0	10.8
5	30.091	62.0	25.5
28	30.242	69.0	31.0
39	. .	. .	30.5
46	30.296	70.0	29.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
16	— 0.5	+ 22.8	. .	+ 22.3
17	— 0.6	— 22.8	. .	— 23.4
20	— 0.2	. .	. .	— 0.2
35	— 0.5	— 20.4	. .	— 20.9
36	— 0.5	+ 20.4	. .	+ 19.9
41	— 0.1	+ 2.0	. .	+ 1.9
42	— 0.2	— 2.0	. .	— 2.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Mar. 15	1	ζ Cygni	E.	. .	. .	. .	13.0	15.6	18.0	22.9	24.4	27.5	7 13.28	— 0.84	+15.39	+15.49	21 7 26.93	+ 0.10
	2	α Cephei	E.	. .	. .	5.0	9.8	14.0	18.8	22.6	. .	. .	15 13.98	— 0.61	. .	+15.49	21 15 28.86	+ 0.02
	3	β Aquarii	E.	21.0	23.5	25.1	31.3	33.4	35.4	41.7	43.0	45.6	24 33.33	— 0.96	+15.43	+15.49	21 24 47.86	+ 0.09
	4	Venus II, N.	E.	59.8	1.4	6.0	7.8	9.9	11.9	14.2	18.4	20.0	50 9.93	— 0.99	. .	+15.50	21 50 24.44	— 0.43
16	5	Sun I, N.	E.	27.8	30.4	32.0	38.1	40.0	42.0	48.3	50.0	52.4	45 40.11	— 0.94	. .	+15.50	23 25 54.67	. .
	6	Sun II, S.	E.	37.1	39.4	41.2	47.1	49.4	51.4	57.4	59.0	1.6	47 49.29	— 0.94	. .	+15.50	23 48 3.85	. .
	7	Polaris	E.	. .	. .	45.0	12.0	41.0	10.0	32.0	. .	. .	10 40.00	+ 5.98	. .	+15.51	1 11 1.49	+ 1.25
	8	α Arietis	E.	28.2	31.0	32.7	39.4	41.6	43.8	50.4	52.0	54.8	59 41.54	— 0.86	+15.43	+15.52	1 59 56.20	+ 0.10
	9	ε Orionis	E.	. .	. .	24.0	26.0	28.0	30.0	32.1	. .	. .	29 28.02	— 1.00	+15.66	+15.53	5 29 42.55	— 0.14
	10	α Columbæ	E.	. .	. .	. .	. .	48.6	51.0	56.0	57.8	0.9	34 46.10	— 1.10	+15.57	+15.53	5 35 0.53	— 0.08
	11	Moon I, S.	E.	. .	. .	. .	. .	39.3	41.6	46.1	47.9	50.9	37 37.00	— 0.94	. .	+15.53	5 37 51.59	+67.47
	12	α Orionis	E.	47.2	49.9	51.4	57.5	59.5	1.5	7.8	9.4	12.0	47 59.58	— 0.98	+15.56	+15.54	5 48 14.14	— 0.05
	13	χ^4 Orionis	E.	51.0	55.5	59.7	1.9	4.1	6.2	8.5	12.7	17.3	56 4.10	— 0.95	. .	+15.54	5 56 18.69	+ 0.36
	14	3 Geminorum	E.	29.4	32.3	33.8	40.5	42.7	45.0	51.5	53.3	56.0	1 42.72	— 0.95	. .	+15.54	6 1 57.31	+ 0.33
	15	δ Ursæ Minoris, S.P.	E.	. .	. .	32.5	0.0	25.0	50.0	16.0	. .	. .	13 24.70	— 2.88	. .	+15.54	18 13 37.36	+ 0.23
	16	ν Geminorum	E.	56.8	58.2	2.5	4.8	7.0	9.1	11.3	15.7	17.4	19 6.94	— 0.95	. .	+15.54	6 19 21.53	+ 0.22
	17	γ Geminorum	E.	. .	. .	0.0	2.1	4.3	6.5	8.6	. .	. .	30 4.30	— 0.96	+15.53	+15.54	6 30 18.88	— 0.02
	18	26 Geminorum	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	19	ε Geminorum	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	20	ω Canis Majoris	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	21	δ Geminorum	E.	0.8	3.6	5.3	11.9	14.0	16.2	22.9	24.6	27.3	12 14.07	— 0.95	+15.58	+15.54	7 12 28.66	— 0.10
	22	56 Geminorum	E.	56.0	58.7	0.4	6.9	9.0	11.3	17.8	19.5	22.4	14 9.11	— 0.95	. .	+15.54	7 14 23.70	— 0.10
	23	Jupiter I, S.	E.	47.5	50.4	52.0	. .	. .	. .	9.7	11.3	14.1	26 0.83	— 0.95	. .	+15.54	7 26 15.42	. .
	24	Jupiter II, N.	E.	. .	. .	59.4	1.6	3.9	6.2	8.4	. .	. .	26 3.90	— 0.95	. .	+15.54	7 26 18.49	. .
	25	α Canis Minoris	E.	9.1	11.9	13.4	19.4	21.5	23.6	29.8	31.3	33.9	32 21.54	— 0.98	+15.59	+15.55	7 32 36.11	— 0.20
	26	β Geminorum	E.	0.5	3.4	5.2	12.1	14.4	16.8	23.7	25.5	28.5	37 14.46	— 0.93	+15.56	+15.55	7 37 29.08	— 0.04
	27	φ Geminorum	E.	11.5	14.5	16.1	23.0	25.3	27.7	34.5	36.3	39.0	45 25.32	— 0.94	+15.57	+15.55	7 45 39.93	— 0.10
	28	λ Ursæ Minoris, S.P.	E.	. .	. .	16.0	27.0	40.0	51.0	3.0	. .	. .	51 39.40	— 6.96	. .	+15.55	19 51 47.99	+ 1.69
	29	Uranus I	E.	14.7	17.4	19.0	. .	. .	. .	36.5	38.2	41.0	57 27.80	— 0.95	. .	+15.55	7 57 42.40	. .
	30	Uranus II	E.	. .	. .	23.8	26.0	28.1	30.3	32.5	. .	. .	57 28.14	— 0.95	. .	+15.55	7 57 42.74	
17	31	ε Pegasi	S.	25.4	28.0	29.6	35.9	37.8	39.9	46.0	47.7	50.1	37 37.82	. .	. .	. .	. . . .	. .
18	32	ζ Tauri	S.	31.3	34.0	35.7	42.2	44.4	46.6	53.2	54.9	57.6	29 44.43	— 0.89	. .	+15.59	5 29 59.13	+ 0.56
	33	136 Tauri	S.	48.0	50.9	52.5	59.4	1.6	3.9	11.0	12.8	15.5	45 1.73	— 0.88	. .	+15.59	5 45 16.44	+ 0.49
	34	141 Tauri	S.	. .	. .	38.1	40.6	42.9	45.0	47.3	. .	. .	53 42.78	— 0.89	. .	+15.59	5 53 57.48	+ 0.41
	35	3 Geminorum	S.	. .	. .	38.0	40.3	42.5	44.8	47.0	. .	. .	1 42.52	— 0.89	. .	+15.59	6 1 57.22	+ 0.37
	36	δ Ursæ Minoris, S.P.	S.	. .	. .	. .	. .	. .	. .	6.5	41.5	58.0	13 24.67	— 2.57	. .	+15.59	18 13 37.69	— 0.09
	37	μ Geminorum	S.	44.6	47.5	49.2	55.9	58.0	0.1	6.9	8.6	11.2	14 58.00	— 0.89	+15.59	+15.59	6 15 12.70	— 0.04
	38	ε Geminorum	S.	. .	. .	44.0	46.2	48.5	50.8	53.0	. .	. .	35 48.50	— 0.88	. .	+15.59	6 36 3.21	+ 0.16
	39	51 Cephei	S.	. .	. .	. .	. .	30.0	11.5	54.0	. .	. .	39 29.37	+ 1.36	. .	+15.59	6 53 46.32	+ 0.34
	40	δ^1 Geminorum	S.	0.4	3.3	4.9	. .	. .	. .	22.6	24.2	27.0	12 13.73	— 0.89	. .	+15.59	7 12 28.43	. .
	41	δ^2 Geminorum	S.	. .	. .	9.6	11.8	14.0	16.2	18.5	. .	. .	12 14.02	— 0.89	+15.53	+15.59	7 12 28.72	0.00
	42	Moon I, N.	S.	16.0	19.3	21.1	28.0	30.3	32.6	39.4	41.2	44.1	25 30.22	— 0.89	. .	+15.60	7 25 44.93	+67.70
	43	κ Geminorum	S.	15.0	17.9	19.6	26.4	28.6	30.9	37.5	39.3	42.0	36 28.58	— 0.89	. .	+15.60	7 36 43.29	— 0.21
	44	φ Geminorum	S.	11.2	14.3	16.0	22.8	25.1	27.5	34.4	36.2	39.0	45 25.17	— 0.88	+15.63	+15.60	7 45 39.89	— 0.11
	45	o^2 Cancri	S.	59.2	3.4	7.8	10.0	12.0	14.1	16.3	20.5	24.8	50 12.01	— 0.91	. .	+15.60	8 50 26.70	— 0.59
	46	κ Cancri	S.	22.0	24.7	26.2	32.6	34.7	36.8	43.0	44.6	47.2	0 34.64	— 0.92	+15.59	+15.60	9 0 49.32	0.00
	47	83 Cancri	S.	23.0	25.8	27.4	33.8	36.0	38.2	44.7	46.3	49.0	11 36.02	— 0.90	. .	+15.61	9 11 50.73	— 0.65
	48	ω Leonis	S.	9.6	12.1	13.9	19.9	22.0	24.1	30.4	32.0	34.5	21 22.06	— 0.92	. .	+15.61	9 21 36.75	— 0.65

2, 34, 35, 36. Bisections at sets B and D.
10, 19. Bisections at wires D_3 and VI.
42. Bisections at set C.
43. Telescope micrometer reading diminished ten revolutions in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. I.	II.	III.	IV.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	350 44	9.8	7.6	1.9	3.3	34	. .	. .	. .	138	212	55.6	9 11 33.8	925	+ 10.0	60 18 5.0	— 0.3
2	23 4	11.5	9.7	4.4	5.5	34	. .	790	. .	740	. .	55.6	336 51 44.8	. .	— 26.4	27 57 39.6	— 1.6
3	314 56	9.5	7.5	4.0	3.8	38	. .	. .	. .	912	. .	55.6	45 0 46.9	. .	+ 1 1.7	96 8 9.8	+ 1.7
4	307 12	10.7	9.0	4.8	6.3	39	. .	570	. .	680	. .	55.6	52 44 59.3	. .	+ 1.21.0	103 52 41.5	
5	319 54	10.4	10.2	2.5	4.5	33	550	610	. .	. .	. .	55.6	40 1 25.3	886	+ 51.2	91 8 37.7	
6	319 22	10.1	8.4	4.5	5.7	34	. .	. .	. .	202	248	55.6	40 33 36.3	. .	+ 52.2	91 40 49.7	
7	49 38	7.5	6.3	3.0	3.0	32	550	. .	590	. .	530	55.6	310 17 8.3	. .	— 1 11.5	1 22 18.0	— 0.1
8	343 54	10 7.0	5.6	3.2	3.2	36	. .	315	. .	260	. .	55.6	16 2 5.3	855	+ 17.4	67 8 43.9	+ 2.0
9	319 46	12.7	7.2	4.7	4.5	36	. .	148	. .	140	. .	54.4	40 10 4.2	. .	+ 51.2	91 17 16.6	+ 2.1
10	286 56	22.5	20.5	14.5	17.5	32	. .	. .	350	275	. .	54.4	72 59 16.7	. .	+ 3 15.9	124 8 53.8	+ 2.4
11	344 44	9.3	5.0	2.3	2.7	37	. .	490	450	440	. .	54.4	15 12 22.1	. .	+ 16.5	66 18 59.8	
12	328 26	17.2	13.8	11.5	12.0	36	. .	428	. .	438	. .	54.4	31 30 15.1	. .	+ 37.1	82 37 13.4	+ 2.2
13	341 12	10.2	6.4	4.0	2.1	39	. .	700	. .	685	. .	54.4	18 44 57.3	. .	+ 20.6	69 51 39.1	+ 1.5
14	344 10	5.8	1.0	28.0	28.0	34	. .	030	. .	025	. .	54.4	15 45 25.3	. .	+ 17.1	66 52 3.6	+ 2.6
15	54 24	11.0	6.2	5.0	5.0	32	. .	. .	290	. .	315	54.4	305 31 4.7	865	— 1 24.8	356 36 1.1	— 0.9
16	341 20	10.3	5.3	1.2	1.8	35	. .	372	. .	382	. .	54.4	18 35 49.9	. .	+ 20.4	69 42 31.5	+ 1.8
17	337 32	11.8	8.3	4.2	2.5	31	. .	440	. .	430	. .	54.4	22 22 51.5	. .	+ 25.0	73 29 37.7	+ 1.3
18	358 50	11.8	8.3	4.0	4.0	40	. .	310	. .	285	. .	54.4	21 7 8.1	. .	+ 23.5	72 13 52.8	+ 1.0
19	346 18	15.0	9.4	5.0	4.8	35	. .	. .	870	818	. .	54.4	13 38 1.0	. .	+ 14.7	64 44 36.9	+ 3.5
20	304 32	9.6	3.5	1.8	2.0	39	. .	. .	. .	705	738	54.4	55 24 56.0	. .	+ 1 27.9	106 32 45.1	+ 1.7
21	343 16	12.1	6.8	3.0	4.2	37	. .	350	. .	350	. .	54.4	16 40 22.1	. .	+ 18.2	67 47 1.5	+ 1.2
22	341 44	14.8	10.0	6.3	6.5	36	. .	910	. .	910	. .	54.4	18 12 18.3	. .	+ 20.0	69 18 59.5	+ 1.9
23	343 32	9.7	5.4	1.8	2.2	36	970	. .	. .	. .	890	54.4	16 24 14.1	. .	+ 17.9	67 30 53.0	
24	343 32	9.7	5.4	1.8	2.2	34	. .	510	. .	530	. .	54.4	16 23 36.9	. .	+ 17.9	67 30 15.0	
25	326 36	18.5	13.5	11.0	11.0	35	. .	290	. .	330	. .	54.4	33 19 57.7	. .	+ 40.1	84 26 59.0	— 0.5
26	349 22	17.8	13.6	10.8	11.2	33	. .	000	. .	070	. .	54.4	10 33 22.9	. .	+ 11.4	61 39 55.5	— 0.3
27	348 8	12.0	8.0	4.4	4.8	34	. .	520	. .	515	. .	54.4	11 47 39.4	. .	+ 12.7	62 54 13.3	— 1.1
28	52 6	12.3	7.1	3.3	3.8	35	976	. .	980	. .	975	54.4	307 50 0.6	. .	— 1 18.4	358 55 3.4	0.0
29	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	885			
30																	
31	330 20	10 11.3	7.0	3.4	6.2	35	591	561	. .	595	637	54.5	29 35 55.7	818	+ 34.0	80 42 50.9	— 0.2
32	342 6	10 18.8	13.5	9.3	12.7	33	. .	929	. .	927	. .	54.5	17 49 36.7	. .	+ 19.1	68 56 17.0	+ 1.6
33	348 38	11.0	4.0	0.4	2.6	38	. .	561	. .	543	. .	54.5	11 18 38.7	781	+ 11.9	62 25 11.8	+ 4.1
34	343 26	10 15.3	10.5	6.5	12.0	34	290	292	. .	317	259	54.5	16 29 39.6	784	+ 17.6	67 36 18.4	+ 2.4
35	344 10	10 14.3	8.3	2.8	5.3	33	. .	670	. .	590	. .	54.5	15 45 26.1	787	+ 16.8	66 52 4.1	+ 2.6
36																	
37	343 38	10 16.0	8.9	5.3	9.0	38	. .	. .	. .	480	500	54.5	16 18 43.1	792	+ 17.4	67 25 21.7	+ 1.4
38	346 18	10 4.3	28.2	22.5	27.8	36	. .	. .	. .	642	662	54.5	13 38 3.2	. .	+ 14.5	64 44 38.9	+ 3.6
39	48 16	10 16.0	10.6	6.8	11.3	36	. .	. .	300	310	. .	54.5	311 40 10.7	800	— 1 7.0	2 45 24.9	+ 1.0
40																	
41																	
42	345 50	10 6.8	2.9	27.1	29.5	31	655	. .	745	. .	735	54.5	14 4 50.6	. .	+ 15.0	65 11 26.8	
43	345 44	15.7	11.7	6.8	11.0	42	. .	430	. .	440	. .	54.5	14 11 11.5	813	+ 15.1	65 17 47.8	+ 3.1
44	348 8	8.0	4.2	28 9	1.6	34	. .	920	. .	930	. .	54.5	11 47 41.6	815	+ 12.5	62 54 15.3	+ 1.0
45	337 8	15.3	10.9	5.9	8.8	39	. .	490	. .	440	. .	54.5	22 48 58.4	820	+ 25.2	73 55 44.8	— 0.5
46	332 14	11.0	8.1	2.7	5.3	36	. .	873	. .	875	. .	54.5	27 42 15.1	816	+ 31.5	78 49 7.8	+ 1.3
47	339 18	9.6	6.4	29.9	0.5	37	. .	970	. .	980	. .	54.5	20 38 29.4	. .	+ 22.6	72 45 13.2	— 0.6
48	330 40	16.6	12.0	8.0	11.0	37	. .	050	. .	070	. .	54.5	29 16 23.1	814	+ 33.6	80 23 17.9	— 2.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	. .	. .	29.0
5	. .	. .	34.5
8	. .	. .	37.5
15	30.120	66.0	32.0
29	. .	. .	29.0
31	. .	. .	40.7

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ′	′ ″
4	— 5.2	+ 6.3	. .	+ 1.1
5	— 5.7	+ 16 6.0	. .	+ 16 0.3
6	— 5.7	— 16 6.0	. .	— 16 11.7
11	— 14 5.0	— 14 51.2	. .	— 28 56.2
23	— 0.5	— 19.0	. .	— 19.5
24	— 0.5	+ 19.0	. .	+ 18.5
42	— 13 0.8	+ 14 48.8	. .	+ 1 48.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Mar. 19	1	δ Draconis, S. P. .	Ha.	. .	. .	26.5	20.9	15.5	10.4	5.0	. .	. .	12 15.66	— 1.51	. .	+15.84	19 12 29.99	— 0.02
	2	Jupiter I, S. . .	Ha.	54.6	57.4	59.0	. .	. .	. .	16.9	18.4	21.2	26 7.92	— 0.97	. .	+15.84	7 26 22.79	. .
	3	Jupiter II, N. . .	Ha.	. .	. .	6.5	8.6	10.8	13.0	15.3	. .	. .	26 10.84	— 0.97	. .	+15.84	7 26 25.71	. .
	4	β Geminorum . .	Ha.	0.2	3.2	4.8	11.8	14.0	16.4	23.4	25.0	28.1	37 14.10	— 0.94	+15.88	+15.85	7 37 29.01	— 0.06
	5	ϕ Geminorum . .	Ha.	11.2	14.0	15.9	22.8	25.0	27.3	34.3	36.0	38.7	45 25.02	— 0.95	+15.83	+15.85	7 45 39.92	— 0.06
	6	λ Ursæ Minoris, S.P.	Ha.	. .	. .	20.0	33.0	45.0	54.0	. .	. .	. .	51 44.05	. .	. .	. .	. . . .	. .
	7	ζ^1 Cancri	Ha.	24.7	27.5	29.0	. .	. .	. .	46.2	47.8	50.5	4 37.62	— 0.99	. .	+15.85	8 4 52.48	— 0.34
	8	ζ^2 Cancri	Ha.	. .	. .	33.7	35.8	37.9	40.0	42.2	. .	. .	4 37.92	— 0.99	. .	+15.85	8 4 52.78	— 0.34
	9	Moon I, N. . .	Ha.	48.6	51.5	53.2	0.0	2.3	4.6	11.3	13.0	15.9	19 2.27	— 0.97	. .	+15.85	8 19 17.15	+67.11
	10	γ Cancri	Ha.	24.9	27.7	33.9	36.0	38.1	40.3	42.7	48.7	51.3	35 38.18	— 0.97	. .	+15.85	8 35 53.06	— 0.51
	11	o^1 Cancri	Ha.	39.5	42.0	43.7	50.1	52.2	54.3	0.5	2.2	4.0	49 52.16	— 1.00	. .	+15.86	8 50 7.02	— 0.56
	12	κ Cancri	Ha.	22.0	24.6	26.1	32.4	34.5	36.6	42.9	44.3	47.0	0 34.49	— 1.02	+15.83	+15.86	9 0 49.33	+ 0.02
	13	ξ Leonis	Ha.	. .	. .	44.4	46.5	48.5	50.6	52.7	. .	. .	24 48.54	— 1.02	. .	+15.86	9 25 3.38	— 0.66
	14	ε Leonis	Ha.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
20	15	δ Ursæ Minoris, S.P.	F.	. .	. .	. .	1.0	26.5	52.0	. .	. .	. .	13 26.50	— 4.26	. .	+15.87	18 13 38.11	— 0.36
	16	26 Geminorum . .	F.	28.7	31.7	33.2	39.6	41.7	43.9	50.4	51.9	54.5	34 41.73	— 0.87	. .	+15.87	6 34 56.73	+ 0.20
	17	a Canis Majoris. .	F.	2.6	5.3	6.7	13.0	15.2	17.4	23.7	25.4	28.0	39 15.26	— 0.98	+15.87	+15.88	6 30 30.16	— 0.07
	18	68 Geminorum . .	F.	53.0	54.5	58.7	0.8	2.9	5.2	7.4	11.5	13.1	26 3.01	— 0.88	. .	+15.89	7 26 18.02	— 0.10
	19	f Geminorum . .	F.	37.0	39.7	41.3	47.8	50.0	52.2	58.6	0.1	2.9	31 49.96	— 0.87	. .	+15.89	7 32 4.98	— 0.14
	20	c Geminorum . .	F.	49.6	52.6	54.2	1.0	3.4	5.7	12.5	14.2	17.2	36 3.38	— 0 84	. .	+15.89	7 36 18.43	— 0.19
	21	ϕ Geminorum . .	F.	11.1	14.0	15.5	22.5	24.8	27.1	33.9	35.6	38.6	45 24.79	— 0.83	+15.93	+15.89	7 45 39.85	— 0.12
	22	λ Ursæ Minoris, S.P.	F.	. .	. .	23.0	34.0	44.0	56.0	9.0	. .	. .	51 45.28	—11.33	. .	+15.89	19 51 49.84	+ 0.15
	23	Uranus I, C. . .	F.	59.8	2.5	4.3	. .	. .	. .	21.7	23.5	26.2	57 13.00	— 0.85	. .	+15.89	7 57 28.04	. .
	24	Uranus II . . .	F.	. .	. .	9.1	11.2	13.5	15.7	. .	. .	. .	57 13.46	— 0.85	. .	+15.89	7 57 28.50	. .
	25	λ Cancri	F.	. .	. .	36.0	38.3	40.6	42.9	45.0	. .	. .	12 40.56	— 0.84	. .	+15.90	8 12 55.62	— 0.39
	26	27 Cancri	F.	11.8	14.4	16.0	22.3	24.4	26.4	32.8	34.4	37.0	19 24.39	— 0.89	. .	+15.90	8 19 39.40	— 0.37
	27	Moon, N. . . .	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	28	ε Leonis	F.	7.2	10.0	11.7	18.4	20.6	22.8	29.5	31.3	34.0	38 20.61	— 0.85	+15.94	+15.92	9 38 35.68	— 0.08
	29	μ Leonis	F.	0.7	3.7	5.4	12.3	14.6	16.9	23.7	25.5	28.3	45 14.57	— 0.84	+15.88	+15.92	9 45 29.65	+ 0.03
	30	ε Pegasi	E.	24.8	27.4	29.0	35.4	37.5	39.5	45.6	47.4	49.9	37 37.39	— 0.88	+16.11	+16.08	21 37 52.59	— 0.02
	31	a Aquarii. . . .	E.	. .	. .	52.0	54.0	56.0	58.0	0.0	. .	. .	58 56.00	— 0.92	+16.08	+16.09	21 59 11.17	+ 0.04
21	32	Sun I, N. . . .	E.	39.8	42.7	44.0	50.4	52.2	54.2	0.3	1.9	4.5	3 52.22	— 0.91	. .	+16.11	0 4 7.42	. .
	33	Sun II, S. . . .	E.	49.0	51.5	53.0	59.0	1.2	3.3	9.5	11.0	13.7	6 1.24	— 0.91	. .	+16.11	0 6 16.44	. .
	34	Mercury, C. . .	E.	15.2	17.9	19.5	25.6	27.7	29.7	35.9	37.5	40.0	44 27.67	— 0.90	. .	+16.12	0 44 42.89	+ 0.01
	35	Polaris	E.	. .	. .	45.5	12.0	38.0	0.0	23.0	. .	. .	11 35.70	+ 7.81	. .	+16.12	1 11 59.63	+ 1.13
	36	a Arietis	E.	27.4	30.3	31.9	38.6	40.7	43.0	49.5	51.2	54.0	59 40.73	— 0.83	+16.17	+16.13	1 59 56.03	— 0.03
	37	δ Geminorum . .	E.	0.0	3.0	4.6	11.0	13.4	15.7	22.3	24.0	26.7	12 13.41	— 0.92	+16.12	+16.18	7 12 28.67	0.00
	38	56 Geminorum . .	E.	. .	6.2	8.5	10.5	12.8	. .	17.0	18.7	21.5	14 8.38	— 0.92	. .	+16.18	7 14 23.64	— 0.02
	39	68 Geminorum . .	E.	50.2	53.0	54.5	1.0	3.0	5.0	11.4	13.0	15.8	26 2.99	— 0.93	. .	+16.19	7 26 18.25	— 0.08
	40	f Geminorum . .	E.	36.9	39.5	41.2	47.6	49.9	52.1	58.4	0.0	2.8	31 49.82	— 0.92	. .	+16.19	7 32 5.09	— 0.12
	41	c Geminorum . .	E.	49.5	52.5	54.2	0.9	3.2	5.4	12.4	14.0	17.0	36 3.23	— 0.90	. .	+16.19	7 36 18.52	— 0.16
	42	g Geminorum . .	E.	14.5	17.3	18.9	25.3	27.5	29.7	36.2	37.8	40.5	38 27.52	— 0.92	. .	+16.19	7 38 42.79	— 0.16
	43	λ Ursæ Minoris, S.P.	E.	31.5	. .	. .	. .	. .	. .	33.5	12.0	. .	51 44.90	— 9.09	. .	+16.19	19 51 52.00	+ 1.36
	44	ω^1 Geminorum . .	E.	. .	. .	51.3	53.7	56.0	58.2	0.5	. .	. .	52 55.94	— 0.90	. .	+16.19	7 53 11.23	— 0.26
	45	5 Cancri	E.	44.4	47.3	48.9	55.3	57.4	59.6	6.0	7.6	10.1	53 57.40	— 0.93	. .	+16.19	7 54 12.66	— 0.24
	46	Uranus I, C. . .	E.	. .	. .	5.3	7.6	9.9	12.0	14.2	. .	. .	57 9.80	— 0.92	. .	+16.19	7 57 25.07	. .
	47	Uranus II . . .	E.	. .	. .	. .	. .	. .	. .	19.0	20.8	23.5	57 10.33	— 0.92	. .	+16.19	7 57 25.60	. .
	48	λ Cancri	E.	26.9	29.8	31.5	38.2	40.4	42.7	49.4	51.0	53.8	12 40.41	— 0.90	. .	+16.19	8 12 55.70	— 0.37
	49	d^1 Cancri	E.	. .	. .	44.8	47.0	49.0	51.3	55.7	57.2	59.9	15 46.96	— 0.92	. .	+16.19	8 16 2.23	— 0.36

9. Bisection at wires IV–VII.
43. Bisections at wires D_1 and D_2.
46, 49. Bisections at wires D_3 and VI.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	73 34	9.5	5.6	28.0	28.2	39	275	240	. .	. .	. .	54.1	286 22 46.0	802	— 3 18.5	337 25 48.7	+ 1.2
2	343 32	5.7	2.7	25.5	28.5	37	940	. .	. .	. .	950	54.1	16 24 25.2	. .	+ 17.8	67 31 4.2	
3	343 32	5.7	2.7	25.5	28.5	35	. .	430	. .	450	. .	54.1	16 23 46.6	. .	+ 17.8	67 30 25.6	
4	349 22	7.5	2.9	27.6	29.7	33	. .	850	. .	895	. .	54.1	10 33 23.8	811	+ 11.0	61 39 56.0	+ 0.4
5	348 8	5.6	1.5	23.8	28.2	35	130	140	. .	. .	. .	54.1	11 47 41.2	. .	+ 12.4	62 54 14.8	+ 0.6
6	52 6	7.7	4.5	28.7	1.8	36	. .	152	180	155	. .	54.1	307 50 0.0	. .	— 1 16.3	358 55 4.9	+ 2.0
7	339 4	7.2	2.9	26.6	29.4	33	705	. .	. .	. .	760	54.1	20 51 21.4	. .	+ 22.6	71 58 5.2	+ 0.6
8	339 4	7.2	2.9	26.6	29.4	33	. .	975	. .	050	. .	54.1	20 51 25.5	. .	+ 22.6	71 58 9.3	+ 0.6
9	344 18	9 26.7	23.5	16.0	18.8	32	. .	370	380	470	525	54.1	15 36 49.5	821	+ 16.6	66 43 27.3	
10	342 58	4.4	0.4	22.6	25.8	35	. .	280	. .	295	. .	54.1	16 57 41.9	. .	+ 18.2	68 4 21.3	+ 1.5
11	336 52	3.8	0.4	23.9	25.5	38	. .	495	. .	510	. .	54.1	23 4 31.4	. .	+ 25.4	74 11 18.0	— 0.8
12	332 14	5.7	2.5	25.7	28.8	37	. .	255	. .	245	. .	54.1	27 42 14.4	830	+ 31.2	78 49 6.8	+ 0.3
13	332 54	6.6	2.9	26.1	29.8	33	. .	. .	. .	320	350	54.1	27 1 14.9	. .	+ 30.5	78 8 6.6	— 2.1
14	345 24	5.0	2.1	25.0	29.1	34	870	890	. .	. .	. .	54.1	14 31 37.8	840	+ 15.5	65 38 14.5	+ 0.2
15	54 24	8.7	5.9	29.9	0.2	32	. .	650	648	670	. .	55.2	305 31 7.8	968	— 1 27.0	356 36 2.0	+ 0.2
16	338 50	9.8	7.6	0.7	2.0	40	. .	. .	. .	665	665	55.2	21 7 12.3	. .	+ 24.1	72 13 57.6	— 1.0
17	304 32	13.4	8.6	3.7	5.0	39	. .	280	. .	280	. .	55.2	55 24 53.5	. .	+ 1 30.2	106 32 44.9	+ 1.4
18	337 8	16.4	12.5	7.1	7.0	32	. .	445	. .	440	. .	55.2	22 47 11.7	. .	+ 26.3	73 53 59.2	+ 0.4
19	339 0	5.5	3.7	26.8	27.4	33	822	818	. .	. .	. .	55.2	20 55 23.1	. .	+ 23.9	72 2 8.2	+ 1.0
20	347 8	8.7	3.6	27.6	29.1	36	668	670	. .	. .	. .	55.2	12 48 8.4	. .	+ 14.2	63 54 43.8	+ 3.7
21	348 8	17.8	14.4	7.3	5.9	34	. .	228	. .	220	. .	55.2	11 47 39.8	. .	+ 13.1	62 54 14.1	— 0.1
22	52 6	4.6	1.8	25.2	26.2	36	595	595	605	620	640	55.2	307 50 4.1	. .	— 1 20.5	358 55 4.8	+ 2.1
23	342 20	4.7	1.2	25.1	26.4	33	. .	450	. .	450	. .	55.2	17 35 15.8	988	+ 19.9	68 41 56.9	
24																	
25	345 28	8.8	6.1	0.6	0.9	35	. .	. .	. .	820	810	55.2	14 27 57.0	. .	+ 16.2	65 34 34.4	+ 2.7
26	334 8	15.8	11.6	6.2	7.1	38	. .	188	. .	180	. .	55.2	25 48 39.3	. .	+ 30.3	76 55 30.8	— 0.9
27	341 36	13.6	10.0	3.0	3.8	28	. .	. .	040	. .	. .	55.2	18 18 1.1	. .	+ 20.8	69 24 43.1	
28	345 24	10.2	6.8	0.4	2.2	34	. .	460	. .	462	. .	55.2	14 31 36.9	1006	+ 16.3	65 38 14.4	+ 0.2
29	347 40	4.2	0.3	24.0	26.2	39	. .	. .	. .	800	740	55.2	12 16 52.3	1006	+ 13.7	63 23 27.2	— 0.6
30	330 20	6.5	1.7	27.7	29.3	35	. .	850	. .	872	. .	56.3	29 35 55.9	955	+ 35.2	80 42 52.3	+ 1.1
31	320 6	11.4	9.2	5.3	6.5	33	. .	358	. .	380	. .	56.3	39 49 24.3	. .	+ 51.7	90 56 37.2	0.0
32	321 54	5.6	2.7	27.3	0.0	40	032	068	. .	. .	. .	56.3	38 2 59.9	. .	+ 47.8	89 10 8.9	
33	321 20	5.1	1.9	27.2	0.2	32	. .	. .	. .	710	785	56.3	38 35 8.2	908	+ 48.7	89 42 18.1	
34	325 56	8.2	3.6	0.7	1.5	39	. .	920	. .	900	. .	56.3	34 1 0.3	. .	+ 41.2	85 8 2.7	
35	49 38	10.9	8.4	2.8	4.8	32	590	. .	590	. .	580	56.3	310 17 11.2	. .	— 1 12.0	1 22 20.4	+ 1.0
36	343 54	12.2	9.5	3.7	7.2	35	. .	990	. .	965	. .	56.3	16 2 4.6	. .	+ 17.6	67 8 43.4	+ 0.7
37	343 16	17.0	13.5	9.0	10.7	36	. .	848	. .	850	. .	55.1	16 40 21.2	. .	+ 18.3	67 47 0.7	+ 0.6
38	341 44	11.2	8.3	3.3	5.6	37	. .	030	. .	038	. .	55.1	18 12 18.6	928	+ 20.1	69 18 59.9	+ 2.0
39	337 8	12.3	8.3	3.8	5.0	32	. .	750	. .	748	. .	55.1	22 47 11.0	. .	+ 25.6	73 53 57.8	+ 0.4
40	339 0	5.2	2.0	28.0	29.7	33	. .	888	. .	875	. .	55.1	20 55 24.2	. .	+ 23.3	72 2 8.7	+ 1.1
41	347 8	12.7	9.5	4.5	6.0	36	. .	520	. .	505	. .	55.1	12 48 11.7	. .	+ 13.9	63 54 46.8	+ 3.7
42	339 52	10.1	6.5	2.7	2.2	36	. .	015	. .	025	. .	55.1	20 14 1.3	. .	+ 22.3	71 10 44.8	+ 1.3
43	52 6	12.2	8.4	5.8	6.1	36	. .	. .	. .	930	065	55.1	307 50 1.2	. .	— 1 18.5	358 55 3.9	+ 1.4
44	346 48	17.0	12.2	7.8	9.0	39	. .	020	. .	060	. .	55.1	13 8 53.8	. .	+ 14.3	64 15 29.3	+ 3.5
45	337 52	13.0	9.0	5.3	5.8	39	. .	065	. .	070	. .	55.1	22 4 51.0	. .	+ 24.8	73 11 37.0	+ 0.5
46	342 22	11.3	6.3	1.0	2.7	40	. .	. .	. .	420	315	55.1	17 35 8.0	. .	+ 19.4	68 41 48.6	
47																	
48	345 28	12.0	7.6	3.3	5.2	35	. .	515	. .	515	. .	55.1	14 27 55.2	. .	+ 15.8	65 34 32.2	+ 2.5
49	339 48	12.0	5.7	1.5	2.2	38	. .	. .	955	005	. .	55.1	20 8 46.7	. .	+ 22.4	71 15 30.3	+ 0.9

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	29.978	68.0	39.5
14	29.990	66.5	36.5
15	30.250	66.5	22.0
29	30.332	64.0	16.7
30	. .	. .	25.0
33	. .	. .	31.5
38	30.330	66.0	28.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
2	— 0.5	— 19.3	. .	— 19.8
3	— 0.5	+ 19.3	. .	+ 18.8
9	—14 28.0	+ 14 52.0	. .	+ 0 24.0
23	— 0.3	. . .	. .	— 0.3
27	—17 0.9	+ 14 57.5	. .	— 2 3.4
32	— 5.5	+ 16 4.6	. .	+ 15 59.1
33	— 5.5	— 16 4.6	. .	— 16 10.1
34	— 3.8	. . .	— 0.1	— 3.9
46	— 0.3	. . .	. .	— 0.3

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Mar. 21	1	29 Cancri	E.	1.0	3.8	5.4	11.6	13.7	15.9	22.0	23.8	26.5	21 13.74	— 0.92	. .	+16.20	8 21 29.02	— 0.38
	2	ε Hydræ	E.	. .	. .	. .	45.0	47.0	49.0	53.2	54.7	57.3	39 44.95	— 0.96	+16.24	+16.20	8 40 0.19	— 0.08
	3	83 Cancri	E.	. .	. .	. .	35.4	37.6	39.8	44.0	45.7	48.4	11 35.45	— 0.93	. .	+16.20	9 11 50.72	— 0.63
	4	1 Draconis . . .	E.	. .	. .	59.3	13.4	28.5	42.9	57.2	. .	. .	18 28.26	+ 0.17	. .	+16.21	9 18 44.64	— 0.51
	5	α Hydræ	E.	51.0	53.5	55.0	1.0	3.1	5.2	11.4	13.0	15.6	21 3.20	— 1.00	+16.23	+16.21	9 21 18.41	— 0.05
	6	ε Leonis	E.	6.9	9.7	11.4	18.2	20.4	22.7	29.5	31.0	34.0	38 20.42	— 0.91	+16.18	+16.21	9 38 35.72	— 0.03
	7	μ Leonis	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	8	π Leonis	E.	0.0	2.5	4.3	10.4	12.4	14.5	20.6	22.2	24.9	53 12.42	— 0.95	. .	+16.21	9 53 27.68	— 0.74
	9	α Leonis	E.	6.2	8.8	10.4	16.7	18.8	20.8	27.0	28.7	31.3	1 18.74	— 0.94	+16.18	+16.21	10 1 34.01	— 0.01
	10	Moon I, N. . .	E.	30.3	33.0	34.7	41.2	43.4	45.6	52.0	53.7	56.5	2 43.38	— 0.93	. .	+16.21	10 2 58.66	+65.29
	11	γ Leonis	E.	27.1	30.0	31.6	38.1	40.4	42.5	49.0	50.8	53.5	12 40.33	— 0.92	+16.21	+16.21	10 12 55.62	— 0.02
24	12	f Geminorum . .	E.	36.6	39.3	40.9	47.3	49.5	51.6	58.1	59.8	2.3	31 49.49	— 0.90	. .	+16.41	7 32 5.00	— 0.07
	13	κ Geminorum . .	E.	. .	. .	23.0	25.3	27.5	29.7	32.0	. .	. .	36 27.50	— 0.88	. .	+16.41	7 36 43.03	— 0.11
	14	ϱ Geminorum . .	E.	. .	. .	22.8	25.0	27.2	29.4	31.6	. .	. .	38 27.20	— 0.90	. .	+16.41	7 38 42.71	— 0.12
	15	λ Ursæ Minoris, S. P.	E.	. .	. .	18.0	30.0	43.0	. .	30.0	8.0	. .	51 42.02	. .	. .	. .	. . . .	. .
	16	Uranus I, C. . .	E.	48.7	51.5	53.1	. .	. .	. .	10.6	12.4	15.0	57 1.88	— 0.89	. .	+16.41	7 57 17.40	. .
	17	Uranus II . . .	E.	. .	. .	57.8	0.0	2.2	4.4	6.6	. .	. .	57 2.20	— 0.89	. .	+16.41	7 57 17.72	. .
	18	μ^2 Cancri	E.	45.0	48.0	49.5	56.4	58.5	0.6	7.2	9.0	11.6	59 58.42	— 0.89	. .	+16.41	8 0 13.94	— 0.24
	19	ζ^1 Cancri	E.	24.0	26.7	28.3	. .	. .	. .	45.5	47.0	49.7	4 36.87	— 0.90	. .	+16.41	8 4 52.38	— 0.26
	20	ζ^2 Cancri	E.	. .	. .	32.7	35.0	37.1	39.2	41.4	. .	. .	4 37.08	— 0.90	. .	+16.41	8 4 52.59	— 0.26
	21	χ Cancri	E.	47.9	50.9	52.6	59.5	1.7	4.0	11.0	12.8	15.7	12 1.79	— 0.88	. .	+16.42	8 12 17.33	— 0.34
	22	d^2 Cancri	E.	6.9	9.4	11.2	17.4	19.6	21.9	28.4	30.0	32.6	18 19.71	— 0.90	. .	+16.42	8 18 35.23	— 0.33
	23	A^1 Cancri	E.	. .	. .	51.7	53.8	55.8	57.9	2.0	3.8	6.5	35 53.76	— 0.91	. .	+16.42	8 36 9.27	— 0.40
	24	δ Cancri	E.	. .	. .	5.0	7.7	9.5	11.6	13.8	. .	. .	37 9.52	— 0.90	. .	+16.42	8 37 25.04	— 0.43
	25	A^2 Cancri	E.	27.2	29.7	31.3	37.7	39.9	41.9	48.2	49.8	52.5	39 39.80	— 0.91	. .	+16.42	8 39 55.31	— 0.42
	26	o^2 Cancri	E.	58.3	0.9	2.5	9.0	11.0	13.0	19.6	21.2	23.8	50 11.03	— 0.90	. .	+16.42	8 50 26.55	— 0.48
	27	κ Cancri	E.	21.2	24.0	25.4	31.7	33.7	35.8	42.0	43.7	46.4	0 33.77	— 0.92	+16.40	+16.42	9 0 49.27	+ 0.01
	28	α Hydræ	E.	53.1	54.8	58.9	1.0	2.9	5.0	7.0	11.0	12.8	21 2.94	— 0.95	+16.41	+16.43	9 21 18.42	— 0.01
	29	ξ Leonis	E.	. .	. .	43.6	45.7	47.7	49.9	51.9	. .	. .	24 47.76	— 0.91	. .	+16.43	9 25 3.28	— 0.61
	30	ε Leonis	E.	6.6	9.2	11.0	17.9	20.1	22.4	29.0	30 7	33.6	38 20.06	— 0.89	+16.49	+16.43	9 38 35.60	— 0.12
	31	μ Leonis	E.	0.2	3.2	5.0	11.8	14.1	16.4	23.4	25 0	28.0	45 14.12	— 0.88	+16.33	+16.43	9 45 29.67	+ 0.09
	32	α Leonis	E.	5.7	8.5	10.0	16.3	18.4	20.5	26.9	28.4	31.0	1 18.41	— 0.91	+16.46	+16.43	10 1 33.93	— 0.07
	33	β Leonis	E.	4.4	7.0	8.7	15.0	17.1	19.2	25.7	27.3	29.9	42 17.14	— 0.90	+16.52	+16.45	11 42 32.69	— 0.09
	34	o Virginis . . .	E.	. .	18.6	22.6	26.8	28.9	31.0	35.0	36.6	39.2	58 26.80	— 0.91	+16.40	+16.45	11 58 42.34	+ 0.03
	35	η Virginis . . .	E.	54.5	57.2	58.7	4.7	6.9	9.0	15.0	16.6	19.2	13 6.87	— 0.94	+16.47	+16.46	12 13 22.39	— 0.03
	36	β Corvi	E.	12.0	14.8	16.6	23.1	25.4	27.6	34.2	36.0	38.8	27 25.40	— 0.99	+16.52	+16.46	12 27 40.87	— 0.10
	37	Moon I, N. . .	E.	50.6	53.2	54.7	0.9	3.0	5.0	11.2	13.0	15.7	31 3.03	— 0.93	. .	+16.46	12 31 18.56	+64.35
	38	Moon II . . .	E.	59.3	1.8	3.1	9.6	11.7	13.8	20.1	21.6	24.2	33 11.69	— 0.93	. .	+16.46	12 33 27.22	−64.31
27	39	δ Canis Majoris .	Ha.	40.8	43.7	45.4	52.1	54.4	56.7	3.6	5.2	8.0	2 54.43	— 1.11	+17.82	+17.82	7 3 11.14	— 0.05
	40	δ Geminorum . .	Ha.	57.8	0.5	2.4	8.9	11.0	13.3	19.9	21.5	24.4	12 11.08	— 0.46	+17.91	+17.82	7 12 28.44	— 0.13
	41	Piazzi VII, 67 .	Ha.	. .	. .	2.3	7.8	13.6	19.0	24.9	. .	. .	17 13.52	+ 1.02	. .	+17.82	7 17 32.36	— 0.34
	42	68 Geminorum . .	Ha.	48.0	50.8	52.3	58.7	0.8	2.9	9.2	10.9	13.6	26 0.80	— 0.54	. .	+17.82	7 26 18.08	+ 0.01
	43	c Geminorum . .	Ha.	47.3	50.2	51.8	58.6	1.0	3.2	10.1	11.7	14.7	36 0.96	— 0.40	. .	+17.83	7 36 18.39	— 0.06
	44	ϱ Geminorum . .	Ha.	. .	. .	23.2	25.4	27.6	29.8	34.0	35.7	38.3	38 25.40	— 0.51	. .	+17.83	7 38 42.72	— 0.06
	45	λ Ursæ Minoris, S. P.	Ha.	. .	. .	. .	. .	. .	. .	4.0	42.0	. .	52 15.65	. .	. .	. .	. . . .	. .
	46	ω^1 Geminorum . .	Ha.	40.0	42.9	44.7	51.5	53.7	56.0	2.9	4.5	7.4	52 53.73	— 0.40	. .	+17.83	7 53 11.16	+ 0.01
	47	Uranus, C.. . .	Ha.	41.5	44.2	45.7	52.3	54.5	56.8	3.4	5.0	7.8	56 54.58	— 0.47	. .	+17.83	7 57 11.94	. .
	48	ζ^1 Cancri	Ha.	22.1	24.8	26.4	. .	. .	. .	43.7	45.2	47.9	4 35.02	— 0.52	. .	+17.83	8 4 52.33	— 0.21
	49	ζ^2 Cancri	Ha.	. .	. .	31.0	33.0	35.3	37.5	39.7	. .	. .	4 35.30	— 0.52	. .	+17.83	8 4 52.61	— 0.21

4. Bisections at set C.
7. Bisections at wires B_1 and D_3.
15. Bisection at wire D_2.
37. Telescope micrometer reading increased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. I.	II.	III.	IV.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	335 42	11.8	6.1	2.5	2.0	40	. .	710	. .	700	. .	55.1	24 15 13.5	. .	+ 27.5	75 22 2.2	− 0.4
2	327 56	17.0	12.1	8.7	10.7	34	. .	. .	. .	922	941	55.1	31 59 51.2	. .	+ 38.2	83 6 50.6	+ 1.3
3	339 18	14.4	9.3	4.8	14.8	37	. .	530	. .	585	. .	55.1	20 38 30.4	. .	+ 23.1	71 45 14.7	0.0
4	42 54	10.0	7.9	3.8	6.2	32	055	. .	. .	. .	045	55.1	317 1 1.8	. .	− 57.1	8 6 25.9	+ 0.5
5	312 58	11.9	8.5	4.5	5.4	39	. .	500	. .	528	. .	55.1	46 58 57.0	. .	+ 1 5.6	98 6 23.8	+ 0.2
6	345 24	13.1	9.2	4.5	5.7	34	. .	260	. .	268	. .	55.1	14 31 37.1	. .	+ 15.9	65 38 14.2	+ 0.1
7	347 40	10.4	6.5	2.4	3.5	39	. .	382	. .	318	. .	55.1	12 16 52.7	. .	+ 13.4	63 23 27.3	− 0.4
8	329 42	12.8	9.6	5.0	7.3	34	. .	395	. .	422	. .	55.1	30 13 39.7	. .	+ 35.7	81 20 36.6	− 3.2
9	333 38	15.2	11.5	7.0	8.0	34	. .	262	. .	312	. .	55.1	26 17 39.6	. .	+ 30.3	77 24 31.1	+ 0.2
10	337 54	13.2	8.5	4.5	4.6	32	. .	522	800	092	. .	55.1	22 1 14.2	. .	+ 24.8	73 8 0.2	
11	341 32	14.2	9.5	5.7	5.9	35	. .	868	. .	892	. .	55.1	18 24 2.6	942	+ 20.4	69 30 44.2	+ 1.1
12	339 0	14.0	10.0	6.5	5.0	33	. .	560	. .	595	. .	53.3	20 55 25.4	. .	+ 23.2	72 2 9.8	+ 1.2
13	345 44	16.3	12.3	9.5	7.2	32	. .	400	. .	470	. .	53.3	14 11 10.4	. .	+ 15.4	65 17 47.0	+ 3.4
14	339 52	13.5	12.0	6.2	6.0	36	. .	078	. .	088	. .	53.3	20 4 4.4	. .	+ 22.2	71 10 47.8	+ 1.4
15	52 6	16.2	11.0	7.5	9.3	35	. .	. .	. .	. .	925	53.3	307 50 0.7	. .	− 1 18.1	358 55 3.8	+ 1.8
16	342 22	13.3	6.5	4.0	6.7	39	. .	300	. .	290	. .	53.3	17 34 52.0	. .	+ 19.2	68 41 32.4	
17																	
18	343 0	14.3	7.2	4.8	9.1	36	. .	580	. .	645	. .	53.3	16 56 12.0	. .	+ 18.5	68 2 51.7	+ 2.3
19																	
20																	
21	348 40	19.2	13.2	10.3	10.0	33	. .	888	. .	918	. .	53.3	11 15 34.8	. .	+ 12.1	62 22 8.1	+ 4.0
22	338 30	14.9	9.5	7.3	8.0	32	. .	862	. .	890	. .	53.3	21 25 15.7	. .	+ 23.8	72 32 0.7	+ 0.6
23																	
24	339 40	7.5	0.8	29.0	4.8	35	. .	680	. .	730	. .	53.3	20 15 52.2	. .	+ 22.4	71 22 35.8	+ 0.7
25	333 38	18.5	13.8	10.4	16.5	37	. .	360	. .	330	. .	53.3	26 18 29.2	. .	+ 30.0	77 25 20.4	− 1.1
26	337 8	13.2	12.2	7.3	7.5	39	. .	440	. .	442	. .	53.3	22 48 56.7	. .	+ 25.5	73 55 43.4	− 0.2
27																	
28	312 58	17.0	12.3	7.8	11.0	39	. .	312	. .	390	. .	53.3	46 58 57.1	. .	+ 1 4.8	98 6 23.1	− 0.7
29	332 54	18.7	14.9	10.8	13.0	32	. .	440	. .	476	. .	53.3	27 1 13.7	900	+ 30.9	78 8 5.8	− 1.9
30	345 24	17.6	13.7	8.8	10.0	34	. .	020	. .	042	. .	53.3	14 31 36.1	. .	+ 15.7	65 38 13.0	− 0.8
31	347 40	18.7	14.5	10.7	11.0	38	. .	928	. .	900	. .	53.3	12 16 52.3	. .	+ 13.2	63 23 26.7	− 0.7
32	333 38	22.4	18.4	13.3	15.8	33	. .	943	. .	985	. .	53.3	26 17 39.9	. .	+ 29.9	77 24 31.0	+ 0.2
33	336 20	14.4	9.3	5.5	7.2	35	. .	865	. .	895	. .	53.3	23 36 0.0	. .	+ 26.3	74 42 47.5	— 1.1
34	330 30	17.4	12.8	8.8	10.2	37	. .	522	. .	526	. .	53.3	29 26 29.4	. .	+ 33.9	80 33 24.5	− 2.0
35	321 6	20.8	16.8	12.2	15.1	36	. .	232	. .	265	. .	53.3	38 50 13.7	. .	+ 48.3	89 57 23.2	− 1.3
36	298 22	17.5	14.0	9.8	12.5	32	. .	060	. .	190	. .	53.3	61 33 7.4	940	+ 1 53.4	112 41 22.0	− 0.9
37	322 18	10 24.2	19.6	14.7	18.1	28	. .	450	. .	775	. .	53.3	37 36 35.2	. .	+ 47.5	88 43 43.9	
38																	
39	294 54	9 22.9	23.7	24.7	25.8	41	. .	385	. .	440	. .	57.3	65 3 14.9	772	+ 2 5.2	116 11 41.3	+ 1.1
40	343 16	9 15.5	16.5	17.6	16.1	38	. .	455	. .	445	. .	57.3	16 40 21.8	. .	+ 17.6	67 47 0.6	+ 0.7
41	29 46	21.6	23.6	24.0	23.6	38	. .	. .	670	. .	. .	57.3	330 10 31.9	775	− 33.6	21 16 19.5	− 1.0
42	337 8	21.0	22.5	23.0	22.9	33	. .	670	. .	685	. .	57.3	22 47 14.4	. .	+ 24.6	73 54 0.2	+ 0.7
43	347 8	10 1.8	2.5	3.0	2.6	36	. .	555	. .	570	. .	57.3	12 48 8.9	. .	+ 13.3	63 54 43.4	+ 4.1
44	339 52	9 18.9	19.6	20.9	20.1	36	. .	. .	. .	955	955	57.3	20 4 2.3	. .	+ 21.4	71 10 44.9	+ 1.6
45	52 6	24.0	26.0	26.7	26.5	36	. .	. .	. .	355	390	57.3	307 49 56.8	. .	− 1 15.4	358 55 2.6	+ 0.9
46	346 48	0.0	0.6	1.5	0.5	39	. .	550	. .	580	. .	57.3	13 8 53.2	. .	+ 13.7	64 15 28.1	+ 3.8
47	342 20	3.6	3.9	4.9	4.5	30	. .	. .	. .	635	640	57.3	17 34 39.7	. .	+ 18.6	68 41 19.5	
48	339 4	5.4	6.5	7.0	6.4	33	. .	. .	. .	180	. .	57.3	20 51 20.7	. .	+ 22.4	71 58 4.3	+ 1.1
49	339 4	5.4	6.5	7.0	6.4	33	. .	. .	. .	. .	440	57.3	20 51 24.6	. .	+ 22.4	71 58 8.2	+ 1.1

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
11	30.294	65.0	26.5
29	30.396	68.0	31.0
36	30.410	69.0	26.0
39	30.130	69.5	47.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ″
10	−20 31.7	+ 15 5.1	. .	− 5 28.6
16	— 0.3	. . .	. .	— 0.3
37	−34 35.8	+ 15 33.5	. .	− 19 2.3
47	— 0.2	. . .	. .	— 0.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Mar. 27	1	χ Cancri	Ha.	46.2	49.0	50.7	57.7	0.0	2.3	9.3	11.0	13.8	12 0.00	— 0.38	. .	+17.83	8 12 17.45	— 0.29
	2	d^1 Cancri	Ha.	31.9	34.6	36.3	42.8	45.0	47.3	53.5	55.2	57.7	15 44.92	— 0.51	. .	+17.83	8 16 2.24	— 0.27
	3	29 Cancri	Ha.	59.1	1.8	3.3	9.7	11.7	13.8	20.2	21.8	24.4	21 11.76	— 0.56	. .	+17.83	8 21 29.03	— 0.29
	4	Groom. 3241, S. P.	Ha.	. .	. .	28.6	22.3	15.2	8.5	1.9	. .	. .	30 15.30	— 2.77	. .	+17.82	20 53 30.36	+ 0.17
	5	γ Cancri	Ha.	22.3	25.2	26.7	33.4	35.6	37.9	44.5	45.9	48.7	35 35.58	— 0.46	. .	+17.83	8 35 52.95	— 0.40
	6	A^2 Cancri	Ha.	25.6	28.0	29.8	35.9	38.0	40.1	46.5	48.0	50.6	39 38.06	— 0.59	. .	+17.83	8 39 55.30	— 0.39
	7	60 Cancri	Ha.	. .	. .	35.0	37.2	39.3	41.5	43.5	. .	. .	48 39.30	— 0.59	. .	+17.84	8 48 56.55	— 0.42
	8	α Cancri	Ha.	59.8	2.4	4.0	10.2	12.3	14.5	20.6	22.2	24.8	51 12.31	— 0.59	. .	+17.84	8 51 29.56	— 0.44
	9	κ Cancri	Ha.	19.6	22.2	23.7	30.0	32.0	34.2	40.4	41.9	44.6	0 32.07	— 0.60	+17.74	+17.84	9 0 49.31	+ 0.09
	10	α Hydræ	Ha.	49.0	51.6	53.2	59.2	1.4	3.4	9.6	11.2	13.7	21 1.37	— 0.85	+17.84	+17.84	9 21 18.36	— 0.03
	11	ε Pegasi	E.	23.0	25.6	27.3	33.5	35.5	37.6	43.9	45.5	48.0	37 35.54	— 0.41	+ 17.64	+17.56	21 37 52.69	— 0.07
	12	Venus II, N.	E.	23.6	26.3	27.8	34.2	36.1	38.2	44.6	46.0	48.7	46 36.17	— 0.58	. .	+17.56	22 46 53.15	— 0.41
28	13	Sun I, N.	E.	4.0	6.8	8.4	14.3	16.4	18.5	24.5	26.2	28.7	29 16.42	— 0.46	. .	+17.56	0 29 33.52	. .
	14	Sun II, S.	E.	. .	. .	21.0	23.0	25.2	27.3	29.4	. .	. .	31 25.18	— 0.46	. .	+17.56	0 31 42.28	. .
	15	α Arietis	E.	28.2	30.0	34.3	36.6	38.8	41.0	43.2	47.6	49.4	59 38.79	— 0.29	+17.53	+17.56	1 59 56.06	+ 0.04
	16	γ Geminorum	E.	48.5	51.0	52.7	59.1	1.2	3.4	9.8	11.4	14.0	30 1.23	— 0.21	+17.64	+17.57	6 30 18.59	— 0.10
	17	51 Cephei	E.	0.0	52.5	24.5	32.0	14.5	56.5	4.0	36.0	28.5	39 14.28	. .	. .	. .	. . . .	. .
	18	ε Canis Majoris	E.	4.7	7.7	9.5	14.2	18.7	23.5	28.3	29.8	32.8	53 18.80	— 0.71	+17.52	+17.57	6 53 35.66	0.00
	19	δ Canis Majoris	E.	40.5	43.5	45.2	51.9	54.3	56.6	3.4	5.0	7.9	2 54.26	— 0.67	+17.53	+17.57	7 3 11.16	— 0.01
	20	δ Geminorum	E.	57.8	0.5	2.3	8.9	11.1	13.3	20.0	21.6	24.3	12 11.09	— 0.15	+17.55	+17.57	7 12 28.51	— 0.04
	21	Anonymous	E.	10.6	14.4	16.5	25.5	28.5	31.4	40.3	42.6	46.4	18 28.47	+ 0.20	. .	+17.57	7 18 46.24	+ 0.03
	22	Jupiter I, N.	E.	56.9	59.7	1.4	. .	. .	. .	19.0	20.8	23.5	27 10.22	— 0.14	. .	+17.57	7 27 27.65	. .
	23	Jupiter II, S.	E.	. .	. .	8.7	11.0	13.2	15.5	17.7	. .	. .	27 13.22	— 0.14	. .	+17.57	7 27 30.65	. .
	24	Anonymous	E.	. .	. .	14.8	17.6	20.7	23.5	26.9	. .	. .	31 20.70	+ 0.20	. .	+17.57	7 31 38.47	— 0.09
	25	κ Geminorum	E.	12.1	14.9	16.7	23.4	25.7	28.0	34.7	36.5	39.1	36 25.68	— 0.12	. .	+17.57	7 36 43.13	— 0.04
	26	ϕ Geminorum	E.	8.5	11.4	13.0	20.0	22.2	24.6	31.5	33.3	36.0	45 22.28	— 0.09	+17.56	+17.57	7 45 39.76	— 0.07
	27	5 Cancri	E.	42.3	45.0	46.6	53.1	55.3	57.4	3.8	5.4	8.0	53 55.21	— 0.21	. .	+17.57	7 54 12.57	— 0.13
	28	Uranus I, C.	E.	39.8	. .	44.1	. .	. .	. .	1.7	3.3	6.0	56 52.90	— 0.16	. .	+17.57	7 57 10.31	. .
	29	Uranus II	E.	. .	. .	48.8	51.0	53.3	55.4	57.7	. .	. .	56 53.24	— 0.16	. .	+17.57	7 57 10.65	. .
	30	μ^2 Cancri	E.	43.2	46.1	47.8	54.3	56.6	58.9	5.4	7.0	9.8	59 56.57	— 0.15	. .	+17.57	8 0 13.99	— 0.18
	31	λ Cancri	E.	24.7	27.6	29.2	35.9	38.3	40.5	47.2	48.9	51.7	12 38.22	— 0.12	. .	+17.58	8 12 55.68	— 0.26
	32	d^2 Cancri	E.	5.0	7.9	9.4	15.8	18.0	20.1	26.5	28.2	30.9	18 17.98	— 0.20	. .	+17.58	8 18 35.36	— 0.27
	33	27 Cancri	E.	. .	. .	17.8	20.0	22.1	24.2	26.3	. .	. .	19 22.08	— 0.25	. .	+17.58	8 19 39.41	— 0.33
	34	A^1 Cancri	E.	. .	. .	47.9	50.0	52.0	54.1	56.3	. .	. .	35 52.06	— 0.24	. .	+17.58	8 36 9.40	— 0.35
29	35	δ Geminorum	F.	57.8	0.6	2.3	8.9	11.1	13.3	19.9	21.5	24.3	12 11.08	— 0.28	+17.68	+17.76	7 12 28.56	+ 0.02
	36	67 Piazzi	F.	. .	. .	2.6	8.2	14.0	19.5	25.2	. .	. .	17 13.90	+ 0.92	. .	+17.76	7 17 32.58	— 0.02
	37	Anonymous	F.	20.8	24.7	27.0	35.8	38.9	41.9	51.0	53.1	56.8	25 38.89	+ 0.11	. .	+17.76	7 25 56.76	— 0.02
	38	Jupiter I, N.	F.	. .	. .	17.0	19.0	21.3	23.7	25.9	. .	. .	27 21.38	— 0.27	. .	+17.76	7 27 38.87	. .
	39	Jupiter II, S.	F.	. .	. .	. .	. .	. .	. .	. .	35.0	37.6	27 24.41	— 0.27	. .	+17.76	7 27 41.90	. .
	40	ϕ Geminorum	F.	8.5	11.3	13.0	19.9	22.3	24.6	31.5	33.0	36.0	45 22.23	— 0.21	+17.72	+17.76	7 45 39.78	— 0.04
	41	λ Ursæ Minoris, S.P.	F.	. .	. .	46.0	58.0	10.0	23.0	34.0	. .	. .	52 10.20	. .	. .	. .	. . . .	. .
	42	Uranus I, C.	F.	38.5	41.3	42.9	. .	. .	. .	0.4	1.9	4.5	56 51.58	— 0.29	. .	+17.76	7 57 9.05	. .
	43	Uranus II	F.	. .	. .	47.4	49.6	51.9	54.1	56.3	. .	. .	56 51.86	— 0.29	. .	+17.76	7 57 9.33	. .
	44	δ Cancri	F.	54.5	57.3	58.9	5.4	7.5	9.7	16.0	17.8	20.4	37 7.50	— 0.32	. .	+17.76	8 37 24.94	— 0.36
	45	ε Hydræ	F.	30.5	33.2	34.7	40.9	43.0	45.0	51.0	52.7	55.3	39 42.92	— 0.45	+17.66	+17.76	8 40 0.23	+ 0.06
	46	o^1 Cancri	F.	36.8	39.3	41.0	47.5	49.6	51.7	58.0	59.5	2.2	49 49.51	— 0.35	. .	+17.77	8 50 6.93	— 0.42
	47	ω Leonis	F.	7.0	9.5	11.0	17.3	19.3	21.4	27.5	29.3	31.7	21 19.33	— 0.42	. .	+17.77	9 21 36.68	— 0.54
	48	ξ Leonis	F.	33.4	36.0	37.6	43.9	46.0	48.0	54.3	55.8	58.6	24 45.96	— 0.40	. .	+17.77	9 25 3.33	— 0.57
	49	ε Leonis	F.	4.7	7.6	9.2	16.0	18.1	20.4	27.0	28.6	31.5	38 18.12	— 0.25	+17.74	+17.77	9 38 35.64	— 0.03

23. Telescope micrometer reading increased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Correction.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	348 40	5.6	5.5	7.4	6.5	34	050	050	. .	. .	. .	57.3	11 15 34.3	. .	+ 11.7	62 22 7.2	+ 4.2
2	339 48	28.6	28.9	0.4	29.2	39	. .	. .	. .	275	240	57.3	20 8 47.1	. .	+ 21.5	71 15 29.8	+ 1.2
3	335 42	27.1	28.1	29.5	28.5	41	. .	065	. .	040	. .	57.3	24 15 13.6	782	+ 26.5	75 22 1.3	+ 1.9
4	68 54	5.3	6.1	6.9	7.1	34	. .	. .	630	. .	. .	57.3	291 1 42.9	. .	− 2 31.9	342 5 32.2	+ 1.1
5	342 58	23.7	24.2	23.5	23.4	35	215	250	. .	. .	. .	57.3	16 57 39.8	. .	+ 18.0	68 4 19.0	+ 2.0
6	333 38	1.5	2.5	2.5	2.0	37	. .	865	. .	870	. .	57.3	26 18 28.5	. .	+ 29.2	77 25 18.9	− 1.0
7	333 10	3.6	4.5	6.0	5.3	37	. .	. .	. .	190	160	57.3	26 46 20.6	. .	+ 29.8	77 53 11.6	− 1.2
8	333 24	5.3	6.4	7.0	5.5	35	. . .	. .	. .	930	970	57.3	26 32 2.9	. .	+ 29.5	77 38 53.6	− 1.2
9	332 14	7.5	9.5	9.4	8.5	36	. .	445	. .	455	. .	57.3	27 42 13.2	. .	+ 31.1	78 49 5.5	− 0.6
10	312 56	2.5	4.2	4.3	3.4	31	. .	860	. .	900	. .	57.3	46 58 57.9	825	+ 1 3.8	98 6 22.9	− 1.1
11	330 20	9 5.7	7.5	8.7	8.4	37	. .	250	. .	275	. .	58.5	29 35 55.8	. .	+ 32.7	80 42 49.7	− 1.6
12	312 2	9 15.8	18.9	21.5	21.8	38	. .	545	. .	450	. .	58.5	47 54 26.6	710	+ 1 3.5	99 1 51.3	
13	324 36	28.0	0.2	1.5	2.0	30	000	100	. .	. .	. .	58.5	35 18 27.6	. .	+ 40.5	86 25 29.3	
14	324 4	5.7	8.4	11.8	11.5	29	. .	. .	. .	590	670	58.5	35 50 30.9	692	+ 41.3	86 57 33.4	
15	343 54	1.0	3.8	4.8	4.2	36	. .	372	. .	390	. .	58.5	16 2 8.2	. .	+ 16.5	67 8 45.9	+ 3.1
16	337 32	4.8	5.0	7.7	4.2	31	. .	470	. .	535	. .	56.6	22 22 53.4	. .	+ 23.8	73 29 38.4	+ 2.2
17	48 16	11.8	11.2	13.5	11.1	35	810	. .	965	. .	880	56.6	311 40 7.2	. .	− 1 5.0	2 45 23.4	0.0
18	. .	15.3	12.5	16.2	13.3	33	. .	428	. .	448	. .	56.6	67 37 31.8	. .	+ 2 19.7	118 46 12.7	+ 2.1
19	294 54	7.0	7.4	10.2	8.2	40	. .	785	. .	797	. .	56.6	65 3 18.6	. .	+ 2 4.0	116 11 43.8	+ 3.6
20	. .	14.3	14.2	17.0	13.5	36	. .	655	. .	670	. .	56.6	16 40 22.0	. .	+ 17.4	67 47 0.6	+ 0.7
21	7 48	10.8	9.1	13.2	9.6	31	. .	392	. .	458	. .	56.6	352 6 57.8	. .	− 8.1	43 13 10.9	+11.3
22	. .	3.5	2.3	5.0	2.5	35	442	. .	. .	. .	445	56.6	16 25 52.1	. .	+ 17.1	67 32 30.4	
23	343 30	3.5	2.3	5.0	2.5	36	965	. .	. .	958	. .	56.6	16 26 30.6	. .	+ 17.1	67 33 8.9	
24	8 0	27.3	27.5	29.0	27.5	34	. .	520	. .	580	. .	56.6	351 55 32.9	. .	− 8.3	43 1 45.8	+11.2
25	345 44	10.8	11.4	13.8	10.7	32	. .	195	. .	245	. .	56.6	14 11 10.8	. .	+ 14.7	65 17 46.7	+ 3.6
26	348 8	5.3	5.7	8.8	5.8	34	. .	538	. .	560	. .	56.6	11 47 41.2	755	+ 12.2	62 54 14.6	+ 0.9
27	337 52	6.8	7.8	9.4	7.0	39	. .	090	. .	110	. .	56.6	22 4 52.5	. .	+ 23.6	73 11 37.3	+ 0.9
28	342 22	1.8	1.6	3.0	0.0	38	. .	592	. .	620	. .	56.6	17 34 38.8	. .	+ 18.5	68 41 18.5	
29																	
30	343 0	29.2	29.3	29.4	28.3	37	. .	185	. .	235	. .	56.6	16 56 14.8	. .	+ 17.8	68 2 53.8	+ 2.4
31	345 28	9.7	10.0	12.2	11.1	35	. .	212	. .	220	. .	56.6	14 27 55.8	. .	+ 15.1	65 34 32.1	+ 3.2
32	338 30	9 27.8	28.9	28.7	27.8	33	. .	532	. .	500	. .	56.6	21 25 17.2	. .	+ 22.9	72 32 1.3	+ 2.2
33	334 8	5.0	5.9	7.6	5.4	38	. .	448	. .	442	. .	56.6	25 48 40.6	. .	+ 28.3	76 55 30.1	− 0.6
34	334 12	8.0	8.0	10.3	9.0	39	. .	200	. .	205	. .	56.6	25 44 55.1	. .	+ 28.2	76 51 44.5	− 0.7
35	343 16	9 14.5	15.5	16.5	12.7	38	. .	760	. .	760	. .	54.9	16 40 22.6	682	+ 17.1	67 47 0.9	+ 1.0
36	29 46	9 18.7	21.4	21.8	19.9	38	. .	850	. .	850	. .	54.9	330 10 30.3	. .	− 32.7	21 16 18.8	− 1.6
37	8 4	10 5.8	6.8	8.1	3.2	32	. .	010	. .	012	. .	54.9	351 51 0.3	. .	− 8.2	42 57 13.3	+11.3
38	343 30	10 5.7	5.1	4.7	2.5	36	. .	. .	. .	846	. .	54.9	16 26 12.8	. .	+ 16.9	67 32 50.9	
39	343 30	10 5.7	5.1	4.7	2.5	39	. .	. .	. .	. .	432	54.9	16 26 52.7	. .	+ 16.9	67 33 30.8	
40	348 8	10 8.7	7.9	8.0	6.6	34	. .	551	. .	555	. .	54.9	11 47 41.0	. .	+ 12.0	62 54 14.2	+ 0.6
41	52 6	5.1	3.0	3.9	2.7	35	742	744	750	750	820	54.9	307 49 55.0	. .	− 1 13.8	358 55 2.4	+ 0.8
42	342 22	4.9	2.5	2.3	1.8	38	. .	356	. .	358	. .	54.9	17 34 34.5	710	+ 18.2	68 41 13.9	− 0.2
43																	
44	339 40	3.1	1.4	2.0	0.5	35	. .	698	. .	688	. .	54.9	20 15 52.4	. .	+ 21.4	71 22 35.0	+ 1.0
45	327 56	0.0	29.7	0.4	28.7	35	. .	740	. .	740	. .	54.9	31 59 51.0	. .	+ 36.1	83 6 48.3	− 0.8
46	336 52	9 28.5	28.6	27.5	26.3	38	. .	410	. .	412	. .	54.9	23 4 30.1	738	+ 24.7	74 11 16.0	0.0
47	330 40	9 28.8	28.4	0.0	28.8	37	. .	802	. .	764	. .	54.9	29 16 21.7	. .	+ 32.6	80 23 15.5	− 2.3
48	332 54	9 21.1	21.0	20.4	19.6	33	. .	982	. .	988	. .	54.9	27 1 14.9	. .	+ 29.6	78 8 5.7	− 1.7
49	345 24	2.0	3.2	3.1	1.2	34	612	626	. .	. .	. .	54.9	14 31 36.7	. .	+ 15.1	65 38 13.0	− 0.3

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
10	30.146	69.0	36.5
12	30.162	67.5	60.0
26	30.068	69.0	48.0
35	29.944	68.0	56.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
12	− 4.6	+ 6.0	. .	+ 1.4
13	− 5.1	+ 16 2.0	. .	+ 15 56.9
14	− 5.2	− 16 2.0	. .	− 16 7.2
22	− 0.5	− 19.3	. .	+ 18.8
23	− 0.5	+ 19.3	. .	− 19.8
28	− 0.2	. .	. .	− 0.2
38	− 0.5	− 20.0	. .	+ 19.5
39	− 0.5	− 19.9	. .	− 20.4
42	− 0.2	. .	. .	− 0.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Mar. 29	1	18 Leonis	F.	3.0	4.5	8.6	10.9	12.8	15.0	17.0	21.2	22.7	39 12.86	— 0.39	. .	+17.77	9 39 30.24	— 0.63
	2	π Leonis	F.	58.0	0.5	2.0	8.3	10.3	12.4	18.6	20.1	22.7	53 10.32	— 0.43	. .	+17.77	9 53 27.66	— 0.67
	3	η Leonis	F.	51.4	54.4	55.8	2.3	4.4	6.5	13.0	14.6	17.4	0 4.42	— 0.33	. .	+17.77	10 0 21.86	— 0.75
	4	α Leonis	F.	3.9	6.6	8.2	14.5	16.6	18.7	24.9	26.5	29.2	1 16.57	— 0.39	+17.74	+17.77	10 1 33.95	— 0.01
	5	Anonymous . .	F.	19.0	21.8	23.4	29.7	31.8	34.0	40.4	41.9	44.3	9 31.81	— 0.37	. .	+17.77	10 9 49.21	— 0.76
	6	Moon II . . .	F.	19.3	22.2	23.9	30.8	33.2	35.4	42.3	44.0	46.8	7 33.10	— 1.14	. .	+17.80	17 7 49.76	—73.16
	7	β Draconis . . .	F.	54.8	59.0	1.3	11.5	14.9	18.2	28.4	30.9	35.0	27 14.89	+ 0.36	. .	+17.80	17 27 33.05	— 0.05
	8	O. Arg. N. 17415 .	F.	. .	. .	41.4	47.2	52.5	58.0	3.6	. .	. .	36 52.54	+ 1.35	. .	+17.80	17 37 11.69	— 0.04
	9	O. Arg. N. 17420 .	F.	. .	. .	49.9	55.4	1.0	6.7	12.1	. .	. .	37 1.02	+ 1.35	. .	+17.80	17 37 20.17	— 0.04
	10	γ^2 Sagittarii . . .	F.	4.0	7.0	8.8	15.9	18.2	20.6	27.8	29.5	32.4	57 18.24	— 1.28	+18.15	+17.80	17 57 34.76	— 0.34
	11	δ Ursæ Minoris . .	F.	. .	. .	. .	38.0	12.0	46.0	. .	. .	. .	13 12.00	+12.47	. .	+17.80	18 13 42.27	+ 0.31
	12	η Serpentis . . .	F.	. .	. .	. .	. .	. .	. .	32.1	33.7	36.3	14 23.98	— 0.77	+17.86	+17.80	18 14 41.01	0.00
	13	1 Aquilæ	F.	44.8	17.4	49.0	55.3	57.2	59.2	5.5	7.0	9.6	27 57.22	— 0.86	+17.93	+17.81	18 28 14.17	— 0.05
	14	51 Cephei, S. P. . .	F.	. .	. .	7.0	22.0	. .	. .	15.0	. .	. .	39 40.57	—16.73	. .	+17.81	6 39 41.65	+ 0.65
	15	β Lyræ	F.	. .	. .	58.5	0.8	3.3	5.7	8.3	. .	. .	45 3.32	— 0.17	+17.89	+17.81	18 45 20.96	— 0.05
31	16	B. A. C. 6289 . .	Ha.	20.5	25.5	28.4	40.1	44.1	47.9	59.8	2.8	7.7	21 44.09	+ 0.56	. .	+18.19	18 22 3.84	— 0.21
	17	1 Aquilæ	Ha.	44.5	47.1	48.6	54.8	56.9	59.0	5.0	6.5	9.2	27 56.84	— 0.68	+18.19	+18.19	18 28 14.35	+ 0.07
	18	51 Cephei, S. P. . .	Ha.	. .	. .	1.6	18.6	36.2	53.8	13.1	. .	. .	39 36.66	. .	. .	. .	. . . .	. .
	19	ζ Aquilæ	Ha.	0.9	3.7	5.0	11.5	13.6	15.6	22.0	23.5	26.0	59 13.53	— 0.40	+18.19	+18.19	18 59 31.32	+ 0.08
	20	Moon II, N. . .	Ha.	22.0	25.0	26.7	33.7	36.0	38.5	45.4	47.0	50.1	16 36.04	— 0.93	. .	+18.19	19 16 53.30	—74.68
	21	γ Aquilæ	Ha.	39.7	42.3	43.9	50.2	52.2	54.3	0.4	2.0	4.7	39 52.19	— 0.45	+18.20	+18.19	19 40 9.93	+ 0.02
	22	α Aquilæ	Ha.	1.6	4.3	5.8	12.0	14.0	16.1	22.3	23.8	26.4	44 14.03	— 0.47	+18.18	+18.19	19 44 31.75	+ 0.05
Apr. 1	23	λ Ursæ Minoris, S.P.	F.	12.0	51.0	39.0	. .	. .	. .	. .	. .	. .	52 25.90	—39.90	. .	+18.23	19 52 4.23	+ 2.05
	24	ϵ Hydræ	F.	30.0	32.6	34.0	40.2	42.3	44.4	50.6	52.1	54.7	39 42.32	— 0.55	+18.32	+18.23	8 40 0.00	— 0.13
	25	σ^2 Cancri	F.	55.8	58.6	0.2	6.6	8.7	10.8	17.2	18.8	21.4	50 8.68	— 0.42	. .	+18.23	8 50 26.49	— 0.35
	26	κ Cancri	F.	19.0	21.5	23.0	29.3	31.4	33.5	39.7	41.4	43.9	0 31.41	— 0.49	+18.23	+18.23	9 0 49.15	— 0.01
	27	α Hydræ	F.	48.4	51.0	52.6	58.7	0.8	2.9	9.0	10.5	13.2	21 0.79	— 0.76	+18.27	+18.24	9 21 18.27	— 0.06
	28	h Leonis	F.	36.0	38.7	40.2	46.5	48.6	50.8	56.9	58.4	1.0	24 48.57	— 0.50	. .	+18.24	9 25 6.31	— 0.53
	29	18 Leonis	F.	59.7	2.3	3.9	10.2	12.3	14.4	20.6	22.1	24.7	39 12.24	— 0.47	. .	+18.24	9 39 30.01	— 0.60
	30	B. A. C. 3345 . .	F.	. .	. .	18.8	21.0	23.2	25.2	27.3	. .	. .	40 23.10	— 0.47	. .	+18.24	9 40 40.87	— 0.60
	31	ν Leonis	F.	53.0	54.6	58.9	1.0	3.0	5.0	7.2	11.3	12.9	51 2.99	— 0.47	. .	+18.24	9 51 20.76	— 0.65
	32	η Leonis	F.	51.1	53.8	55.4	1.8	4.0	6.1	12.5	14.0	16.7	0 3.93	— 0.40	. .	+18.24	10 0 21.77	— 0.72
	33	16 Sextantis . . .	F.	3.0	5.5	7.2	13.3	15.4	17.5	23.5	25.2	27.5	2 15.34	— 0.55	. .	+18.24	10 2 33.13	— 0.67
	34	Anonymous . .	F.	18.6	21.2	22.7	29.0	31.2	33.4	39.7	41.2	44.0	9 31.22	— 0.45	. .	+18.24	10 9 49.01	— 0.74
	35	42 Leonis	F.	27.5	30.0	31.7	38.0	40.1	42.3	48.6	50.3	52.9	14 40.16	— 0.43	. .	+18.24	10 14 57.97	— 0.77
	36	Anonymous . .	F.	14.2	16.9	18.3	24.5	26.6	28.7	34.9	36.4	38.9	20 26.60	— 0.54	. .	+18.24	10 20 44.30	— 0.74
	37	Anonymous . .	F.	12.6	15.2	16.8	22.9	24.9	27.0	33.0	34.8	37.2	32 24.93	— 0.72	. .	+18.24	10 32 42.45	— 0.75
	38	Anonymous . .	F.	35.7	38.3	39.9	46.2	48.2	50.3	56.6	58.3	0.7	39 48.24	— 0.82	. .	+18.24	10 40 5.46	— 0.77
	39	Anonymous . .	F.	54.2	57.0	58.5	4.7	6.9	8.9	15.0	16.6	19.2	46 6.78	— 0.80	. .	+18.24	10 46 24.22	— 0.79
	40	d Leonis	F.	27.8	30.3	31.8	38.0	40.0	42.0	48.3	49.8	52.4	53 40.04	— 0.59	. .	+18.25	10 53 57.70	— 0.83
	41	p^2 Leonis	F.	34.4	36.9	38.4	44.6	46.7	48.8	54.8	56.4	59 0	56 46.67	— 0.64	. .	+18.25	10 57 4.28	— 0.83
	42	χ Leonis	F.	55.5	58.2	59.7	5.8	7.9	10.0	16.2	17.7	20.2	58 7.91	— 0.54	. .	+18.25	10 58 25.62	— 0.86
	43	Anonymous . .	F.	5.8	8.9	10.6	17.5	19.9	22.2	29.2	31.0	34.0	7 19.90	— 1.09	. .	+18.25	11 7 37.06	— 0.93
	44	Anonymous . .	F.	. .	. .	. .	. .	. .	. .	1.0	2.7	5.6	7 51.44	— 1.09	. .	+18.25	11 8 8.60	— 0.93
	45	Anonymous . .	F.	. .	. .	. .	30.6	32.9	35.7	40.4	42.4	45.5	12 30.59	— 1.19	. .	+18.25	11 12 47.65	— 0.93
	46	Anonymous . .	F.	5.5	8.7	10.6	18.7	21.0	23.5	31.3	33.3	36.5	17 21.01	— 1.26	. .	+18.25	11 17 38.00	— 1.05
	47	Anonymous . .	F.	. .	. .	18.0	20.2	22.6	25.0	27.3	. .	. .	19 22.62	— 1.23	. .	+18.25	11 19 39.64	— 1.03
	48	β Leonis	F.	2.3	5.0	6.7	12.9	15.0	17.1	23.5	25.0	27.8	42 15.03	— 0.43	+18.17	+18.25	11 42 32.85	+ 0.06
	49	o Virginis . . .	F.	12.2	14.6	16.3	22.5	24.7	26.9	32.8	34.5	37.0	58 24.61	— 0.52	+18.22	+18.25	11 58 42.34	+ 0.01

3. Bisections at wires B_1 and D_3.
20. Bisections at wires II–VI.
23. Bisections at wires D_2 and D_3.
46. Bisections at wires V and VI.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	333 26	9 29.0	28.8	29.6	27.9	32	. .	. .	. .	488	502	54.9	26 29 15.6	. .	+ 29.0	77 36 5.8	— 1.8
2	329 42	2.3	1.3	0.9	0.0	34	. .	890	. .	894	. .	54.9	30 13 39.4	. .	+ 34.0	81 20 34.6	— 3.0
3	338 26	9 23.5	24.7	24.2	22.9	37	. .	090	. .	090	. .	54.9	21 30 5.8	. .	+ 23.0	72 36 50.0	— 1.0
4	333 38	9 23.6	24.1	23.9	22.2	35	. .	. .	. .	462	460	54.9	26 17 40.5	. .	+ 28.8	77 24 30.5	0.0
5	335 24	9 28.5	29.9	29.2	26.9	33	. .	. .	. .	526	524	54.9	24 31 15.9	760	+ 26.6	75 38 4.3	— 1.9
6																	
7	13 26	9 26.0	26.8	26.8	26.9	38	. .	040	. .	030	. .	58.1	346 30 26.8	. .	— 14.2	37 36 33.8	+ 1.1
8																	
9	. .	. .	. .	. .	. .	.	. .	. .	. .	. ,	. .	. .	. . . .	804			
10	290 40	9 28.7	29.0	27.5	0.7	37	. .	920	. .	900	. .	58.1	69 16 26.6	. .	+ 2 35.2	120 25 23.0	+ 0.1
11	47 38	10 3.6	4.8	5.0	8.0	38	. .	300	300	300	. .	58.1	312 18 38.9	. .	— 1 5.0	3 23 55.1	— 3.0
12	318 8	3.2	2.5	2.6	3.7	38	. .	. .	800	796	. .	58.1	41 48 44.4	810	+ 53.0	92 55 58.6	+ 1.9
13	312 44	9 21.6	21.5	21.2	22.2	39	. .	. .	. .	014	008	58.1	47 12 36.2	. .	+ 1 3.9	98 20 1.3	+ 1.2
14	53 46	10 11.7	11.2	12.4	14.5	33	766	. .	. .	. .	772	58.1	306 9 36.4	. .	— 1 20.8	357 14 36.8	+ 0.3
15	354 16	28.8	0.0	0.0	0.8	39	. .	. .	. .	826	840	58.1	5 40 57.5	810	+ 5.9	56 47 24.6	+ 0.4
16	19 46	0.2	4.2	3.5	1.6	38	. .	. .	. .	945	950	57.4	340 10 46.3	795	— 21.3	31 16 46.2	—23.1
17	312 44	27.4	29.6	29.6	28.6	38	. .	560	. .	570	. .	57.4	47 12 35.9	. .	+ 1 3.7	98 20 0.8	+ 0.8
18	53 46	28.2	1.0	1.1	29.9	34	. .	710	660	635	. .	57.4	306 9 37.3	798	— 1 20.6	357 14 37.9	+ 1.4
19	334 42	24.5	26.2	26.0	26.5	32	. .	260	. .	250	. .	57.4	25 12 56.1	. .	+ 27.8	76 19 45.1	+ 0.6
20	295 22	25.4	27.1	26.7	26.8	32	602	592	525	488	422	57.4	64 33 0.8	798	+ 2 3.4	115 41 25.4	
21	331 22	25.2	26.6	26.5	27.6	40	. .	905	. .	925	. .	57.4	28 35 9.8	. .	+ 32.1	79 42 3.1	+ 0.2
22	329 34	25.3	27.0	26.9	27.2	33	. .	900	. .	925	. .	57.4	30 21 22.3	788	+ 34.4	81 28 17.9	— 0.1
23	52 6	10 17.0	18.5	17.8	19.6	35	138	014	. .	. .	. .	58.4	307 49 59.2	. .	— 1 16.1	358 55 4.3	+ 2.9
24	327 56	14.1	14.3	14.8	15.3	34	. .	. .	. .	715	705	58.4	31 59 53.5	820	+ 37.1	83 6 51.8	+ 2.7
25	337 8	9.5	9.8	10.3	10.7	39	. .	260	. .	264	. .	58.4	22 48 59.0	. .	+ 25.0	73 55 45.2	+ 0.2
26	332 14	4.7	5.6	5.8	5.7	36	. .	708	. .	710	. .	58.4	27 42 15.1	. .	+ 31.3	78 49 7.6	+ 1.6
27	312 56	6.9	7.5	6.2	8.9	31	. .	808	. .	812	. .	58.4	46 59 1.7	. .	+ 1 3.7	98 6 26.6	+ 2.5
28	331 20	10 18.0	18.7	19.0	20.0	36	. .	. .	. .	520	512	58.4	28 36 25.6	825	+ 32.4	79 43 19.2	— 2.0
29	333 26	10.5	11.0	12.0	12.2	32	. .	566	. .	552	. .	58.4	26 29 17.4	. .	+ 29.7	77 36 8.3	— 1.7
30	333 4	6.3	6.7	6.5	7.2	35	. .	. .	. .	314	320	58.4	26 51 55.0	. .	+ 30.2	77 58 46.4	— 1.8
31	334 6	5.0	5.7	6.7	5.1	35	. .	. .	. .	532	528	58.4	25 49 57.2	. .	+ 28.9	76 56 47.3	— 1.7
32	338 26	4.9	5.7	5.2	6.0	36	. .	202	. .	200	. .	58.4	21 30 7.4	. .	+ 23.5	72 36 52.1	— 0.8
33	327 50	9 29.7	29.4	29.3	1.0	33	. .	258	. .	230	. .	58.4	32 5 16.3	. .	+ 37.4	83 12 14.9	— 3.4
34	335 24	9.0	10.2	11.1	10.3	32	. .	680	. .	680	. .	58.4	24 31 18.0	. .	+ 27.2	75 38 6.4	— 1.8
35	336 40	3.1	3.1	3.9	3.0	36	080	072	. .	. .	. .	58.4	23 16 3.4	. .	+ 25.7	74 22 50.1	— 1.6
36	328 56	2.8	3.2	4.0	5.1	39	. .	. .	. .	950	954	58.4	31 1 3.2	836	+ 35.9	82 8 0.3	— 3.5
37	315 50	0.0	0.4	1.5	1.5	35	. .	250	. .	244	. .	58.4	44 5 48.0	. .	+ 57.9	95 13 7.1	— 6.2
38	308 16	7.5	7.7	7.8	9.0	34	. .	510	. .	522	. .	58.4	51 39 43.8	. .	+ 1 15.5	102 47 20.5	— 7.5
39	310 18	1.1	1.4	2.4	3.0	33	. .	512	. .	502	. .	58.4	49 37 22.4	. .	+ 1 9.9	100 44 53.5	— 7.1
40	325 22	5.5	5.7	6.5	6.6	38	. .	860	. .	864	. .	58.4	34 34 48.8	. .	+ 41.3	85 41 51.3	— 4.8
41	321 44	7.2	7.5	8.0	9.6	34	. .	390	. .	306	. .	58.4	38 11 41.4	. .	+ 47.1	89 18 49.7	— 5.4
42	329 4	26.4	26.9	26.4	28.4	34	. .	216	. .	208	. .	58.4	30 51 28.3	. .	+ 35.8	81 58 25.3	— 4.2
43	291 42	0.9	1.6	1.2	3.0	33	822	822	. .	. .	. .	58.4	68 13 26.7	. .	+ 2 29.0	119 22 16.9	— 8.8
44	291 38	5.5	5.7	6.3	7.5	40	. .	. .	. .	668	682	58.4	68 19 16.4	. .	+ 2 29.7	119 28 7.3	— 8.8
45	286 36	7.2	8.0	8.5	9.8	38	. .	. .	. .	174	186	58.4	73 20 37.7	. .	+ 3 18.0	124 30 16.9	— 8.9
46	283 20	28.2	28.5	29.5	0.3	38	. .	. .	. .	822	812	58.4	76 36 41.0	. .	+ 4 7.3	127 47 9.5	— 8.8
47	284 54	2.1	3.0	2.7	3.1	36	. .	. .	. .	712	718	58.4	75 2 12.0	. .	+ 3 41.1	126 12 14.3	— 8.7
48	336 20	29.4	0.6	1.2	0.8	36	220	214	. .	. .	. .	58.4	23 36 2.8	. .	+ 26.3	74 42 50.3	+ 2.3
49	330 30	9 26.9	26.7	28.4	28.3	38	. .	432	. .	438	. .	58.4	29 26 33.8	. .	+ 34.0	80 33 29.0	+ 2.8

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
5	29.978	68.0	46.0
15	30.062	67.0	42.0
22	29.870	68.5	42.0
24	30.124	68.0	41.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
20	—53 22.7	+ 16 10.7	. .	— 37 12.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s
Apr. 1	1	4 Draconis, (R.)	F.	..	..	35.4	45.7	55.2	7.0	..	..	..	5 55.80	+ 2.84	. .	+18.25	12 6 16.89	— 0.50
	2	κ Draconis, (R.)	F.	..	..	..	..	..	..	..	..	..	. . .	. .	. .	. .	. . . .	. .
	3	12 Canum Venat.	F.	..	..	40.3	42.8	45.4	48.0	50.7	..	..	49 45.44	— 0.02	+18.33	+18.26	12 50 3.68	— 0.07
	4	θ Virginis	F.	50.6	53.0	54.6	0.8	2.9	4.9	11.0	12.5	15.0	3 2.81	— 0.71	+18.32	+18.26	13 3 20.36	— 0.10
	5	Polaris, S. P.	F.	..	..	58.5	33.0	8.5	42.0	16.5	..	..	11 7.70	−31.58	. .	+18.26	1 10 54.38	— 2.51
	6	Moon II, N.	F.	..	..	53.6	55.8	58.2	0.4	2.6	..	..	20 58.12	— 1.01	. .	+18.31	20 21 15.42	−73.60
	7	ε Delphini	F.	34.8	37.4	39.0	45.3	47.3	49.4	55.8	57.3	59.9	26 47.36	— 0.51	+18.27	+18.31	20 27 5.16	+ 0.09
	8	α Cygni	F.	27.4	31.0	33.0	41.9	44.6	47.6	56.2	58.3	1.8	36 44.64	+ 0.09	. .	+18.31	20 37 3.04	— 0.01
	9	μ Aquarii.	F.	14.3	16.7	18.3	24.5	26.6	28.8	34.9	36.5	39.0	45 26.62	— 0.75	+18.22	+18.31	20 45 44.18	— 0.16
	10	α Pegasi	E.	..	..	59.7	1.8	4.0	6.0	8.2	..	..	58 3.94	— 0.48	+18.29	+18.23	22 58 21.69	— 0.03
2	11	Sun I, N.	E.	14.7	17.4	19.0	25.0	27.0	29.1	35.4	36.9	39.4	47 27.10	— 0.58	. .	+18.24	0 47 44.76	. .
	12	Sun II, S.	E.	..	..	..	..	..	40.1	44.4	45.9	48.5	49 36.14	— 0.58	. .	+18.24	0 49 53.80	. .
	13	Polaris	E.	..	..	21.0	47.0	14.5	39.5	7.0	..	..	10 13.80	+24.81	. .	+18.24	1 10 56.85	+ 0.02
	14	β Arietis	E.	1.7	4.5	5.8	12.7	15.0	17.1	23.5	25.2	27.8	47 14.81	— 0.41	+18.30	+18.25	1 47 32.65	— 0.03
	15	Mercury I, C.	E.	1.6	4.3	5.8	12.1	14.3	16.4	22.6	24.3	27.0	56 14.27	— 0.48	. .	+18.25	1 56 32.04	+ 0.25
	16	α Arietis	E.	24.9	27.5	29.2	35.9	38.1	40.4	47.0	48.5	51.4	59 38.10	— 0.38	+18.31	+18.25	1 59 55.97	— 0.05
	17	α Ceti.	E.	4.0	6.8	8.3	14.4	16.5	18.5	24.6	26.2	28.8	55 16.46	— 0.60	+18.18	+18.25	2 55 34.11	+ 0.09
	18	α Geminorum	E.	53.2	56.0	58.0	5.2	7.6	10.1	17.3	19.1	22.2	26 7.63	— 0.33	+18.37	+18.29	7 26 25.59	+ 0.16
	19	Jupiter I	E.	0.0	2.8	4.5	..	..	..	22.0	23.7	26.5	28 13.25	— 0.45	. .	+18.29	7 28 31.09	. .
	20	Jupiter II	E.	..	..	11.6	13.9	16.1	18.4	20.6	..	..	28 16.12	— 0.45	. .	+18.29	7 28 33.96	. .
	21	α Canis Minoris.	E.	5.8	8.4	10.0	16.2	18.2	20.1	26.5	28.0	30.6	32 18.20	— 0.63	+18.30	+18.29	7 32 35.86	— 0.17
	22	β Geminorum	E.	56.8	9.9	1.6	8.4	10.8	13.2	20.3	21.9	25.0	37 10.88	— 0.38	+18.29	+18.29	7 37 28.79	— 0.03
	23	ϕ Geminorum	E.	8.0	0.9	12.6	19.4	21.7	24.0	31.0	32.7	35.5	45 21.76	— 0.39	+18.29	+18.29	7 45 39.66	— 0.08
	24	λ Ursæ Minoris, S.P.	E.	..	..	49.0	57.0	9.0	25.0	24.0	..	..	52 10.72	−26.52	. .	+18.29	19 52 2.49	— 0.65
	25	Uranus I, C.	E.	..	..	44.0	46.1	48.4	50.5	52.7	..	..	56 48.34	— 0.46	. .	+18.29	7 57 6.17	. .
	26	Uranus II	E.	..	..	..	..	..	..	57.4	59.2	1.9	56 48.73	— 0.46	. .	+18.29	7 57 6.56	
	27	15 Argus	E.	34.8	37.8	39.4	46.0	48.4	50.6	57.6	59.0	1.7	1 48.37	— 0.96	+18.29	+18.29	8 2 5.70	— 0.06
	28	ι Ursæ Majoris	E.	..	..	2.3	5.3	8.5	11.4	14.6	..	..	50 8.42	— 0.05	. .	+18.30	8 50 26.67	— 0.01
	29	12-Yr.Cat. 1879, S.P.	E.	..	..	24.2	12.2	0.4	48.5	36.5	..	..	53 0.36	— 3.50	. .	+18.30	20 53 15.16	+ 0.13
	30	κ Cancri	E.	18.9	21.5	23.2	29.3	31.5	33.5	39.8	41.4	44.0	0 31.46	— 0.57	+18.24	+18.30	9 0 49.19	+ 0.05
	31	1 Draconis	E.	..	..	54.8	7.8	22.0	37.0	51.7	..	..	18 22.66	+ 2.94	. .	+18.30	9 18 43.90	— 0.46
	32	α Hydræ	E	48.5	51.0	52.6	58.7	0.8	2.8	9.0	10.7	13.3	21 0.82	— 0.77	+18.24	+18.30	9 21 18.35	+ 0.03
	33	h Leonis	E.	36.1	38.8	40.4	46.6	48.6	50.8	56.9	58.5	1.1	24 48.64	— 0.58	. .	+18.30	9 25 6.36	— 0.51
	34	ε Leonis	E.	4.2	7.0	8.8	15.5	17.7	20.0	26.8	28.5	30.0	38 17.72	— 0.42	+18.27	+18.31	9 38 35.61	— 0.02
	35	B. A. C. 3345	E.	10.7	13.3	14.9	21.1	23.2	25.4	31.6	33.2	35.8	40 23.24	— 0.56	. .	+18.31	9 40 40.99	— 0.59
	36	μ Leonis	E.	57.8	0.7	2.5	9.3	11.6	13.9	20.8	22.5	25.3	45 11.60	— 0.40	+18.28	+18.31	9 45 29.51	+ 0.02
	37	ν Leonis	E.	50.5	53.0	54.7	0.9	3.0	5.2	11.4	12.9	15.8	51 3.04	— 0.55	. .	+18.31	9 51 20.80	— 0.64
3	38	Moon II	Ha.	9.2	11.9	13.5	20.1	22.2	24.5	31.0	32.6	35.3	21 22.26	— 0.98	. .	+18.85	22 21 40.13	−69.46
4	39	Sun I, N.	Ha.	31.9	34.4	35.9	42.0	44.0	46.2	52.5	53.9	56.4	54 44.13	— 0.62	. .	+18.87	0 55 2.38	. .
	40	Sun II, S.	Ha.	40.7	43.4	44.9	51.0	53.0	55.1	1.5	3.0	5.5	56 53.12	— 0.62	. .	+18.87	0 57 11.37	. .
	41	Polaris	Ha.	..	..	..	45.2	14.3	34.8	0.3	..	..	10 10.92	+26.93	. .	+18.88	1 10 56.73	+ 0.18
	42	α Tauri	Ha.	2.5	5.0	6.7	13.0	15.2	17.2	23.6	25.2	27.9	28 15.14	— 0.48	+18.85	+18.90	4 28 33.56	+ 0.03
	43	α Aurigæ.	Ha.	36.4	40.0	42.3	51.0	54.0	56.9	5.7	7.8	11.6	6 53.97	+ 0.04	. .	+18.91	5 7 12.92	+ 0.04
	44	β Orionis.	Ha.	..	..	0.2	2.3	4.3	6.4	8.4	..	..	8 4.32	— 0.81	+18.85	+18.91	5 8 22.42	+ 0.06
	45	β Tauri	Ha.	38.6	41.6	43.1	50.2	52.5	54.7	1.8	3.5	6.5	17 52.50	— 0.30	+18.89	+18.91	5 18 11.11	0.00
	46	q Virginis	Ha.	40.8	43.3	45.0	51.2	53.2	55.1	1.5	3.0	5.5	26 53.18	— 0.73	. .	+18.97	12 27 11.42	— 0.98
	47	γ^1 Virginis	Ha.	40.8	43.4	44.9	..	..	..	1.2	2.7	5.3	34 53.05	— 0.62	. .	+18.97	12 35 11.40	— 1.00
	48	γ^2 Virginis	Ha.	..	..	49.0	51.0	53.2	55.3	57.3	..	..	34 53.16	— 0.62	. .	+18.97	12 35 11.51	— 1.00
	49	12 Canum Venat.	Ha.	29.0	32.2	34.2	42.1	44.7	47.3	55.3	57.3	0.5	49 44.73		0.00	+19.03	+18.97	12 50 3.70	— 0.06

1, 2. Bisections at sets B and D.
2. N. P. D. seems all wrong.
11. Bisections at wires B_2 and D_1.
21. Telescope micrometer reading increased one revolution in reduction.
28, 32. Telescope micrometer reading diminished five revolutions in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	140 30	8.8	8.9	8.9	11.2	32	. .	. .	. .	610	612	58.4	219 25 15.8	862	+ 49.5	11 40 15.9	− 2.3
2	148 20	4.8	4.4	5.0	6.5	35	530	. .	. .	. .	526	58.4	211 35 56.5	. .	+ 37.1	19 29 47.6	−34.3
3	0 2	6.4	6.0	7.0	8.2	32	. .	. .	. .	218	150	58.4	359 53 7.4	. .	− 0.1	50 59 28.5	+ 0.6
4	316 12	5.6	5.9	7.0	7.6	36	090	095	. .	098	108	58.4	43 44 6.7	868	+ 57.7	94 51 25.6	+ 1.3
5	52 24	1.9	2.7	3.7	5.2	38	145	145	145	140	138	58.4	307 32 34.9	866	− 1 18.3	358 37 37.8	+ 0.8
6	297 4	0.4	0.7	1.8	0.5	36	. .	. .	. .	. .	124	58.4	62 52 7.2	. .	− 1 56.6	114 0 25.0	
7	331 56	9 27.3	28.0	1.0	0.2	40	706	698	. .	702	700	58.4	28 1 10.2	848	+ 31.9	79 8 3.3	+ 0.5
8	5 52	9 27.2	29.3	0.7	29.2	38	. .	850	. .	840	. .	58.4	354 4 41.9	. .	− 6.2	45 10 56.9	+ 2.0
9	311 36	29.8	29.4	0.5	0.4	37	. .	. .	. .	515	515	58.4	48 20 21.9	842	+ 1 7.2	99 27 50.3	+ 0.1
10	335 34	20.2	22.6	24.5	24.7	36	. .	. .	. .	125	150	58.2	24 22 23.7	. .	+ 26.3	75 29 11.2	+ 1.1
11	326 32	9.4	12.1	13.1	11.7	29	752	798	. .	. .	. .	58.2	33 22 34.6	745	+ 38.2	84 29 34.0	
12	326 0	5.6	6.9	11.1	10.0	30	. .	. .	. .	118	130	58.2	33 54 37.2	. .	+ 39.0	85 1 37.4	
13	49 38	10 7.0	8.3	11.2	9.8	32	188	. .	270	. .	190	58.2	310 17 9.7	. .	− 1 8.4	1 22 22.5	− 0.4
14	341 14	10 7.3	8.2	11.0	8.9	37	. .	. .	. .	820	740	58.2	18 42 34.8	. .	+ 19.7	69 49 15.7	+ 3.1
15	335 28	9.8	10.2	12.6	11.3	37	. .	162	. .	108	. .	58.2	24 28 27.0	. .	+ 26.4	75 35 14.6	
16	343 54	1.7	2.0	4.1	3.0	36	. .	440	. .	445	. .	58.2	16 2 8.2	. .	+ 16.7	67 8 46.1	+ 3.0
17	324 38	8.0	9.0	12.0	11.6	35	. .	153	. .	173	. .	58.2	35 17 55.8	. .	+ 41.2	86 24 58.2	+ 1.5
18	353 12	11.8	12.0	12.8	12.5	33	. .	250	. .	230	. .	55.6	6 43 25.9	. .	+ 6.9	57 49 54.0	+ 0.8
19																	
20																	
21	326 36	4.1	4.3	6.5	5.7	34	. .	925	. .	945	. .	55.6	33 20 0.1	. .	+ 38.4	84 26 59.7	+ 0.3
22	349 22	9.8	9.3	12.3	9.7	33	. .	140	. .	100	. .	55.6	10 33 22.1	. .	+ 10.9	61 39 54.2	− 0.7
23	348 8	15.2	15.4	16.7	15.5	33	. .	945	. .	955	. .	55.6	11 47 40.3	. .	+ 12.2	62 54 13.7	+ 0.3
24	52 6	7.5	8.2	9.0	8.2	35	302	. .	310	. .	305	55.6	307 49 53.1	. .	− 1 15.1	358 54 59.2	+ 0.4
25	342 22	10.5	10.4	11.8	9.8	37	. .	. .	. .	720	690	55.6	17 34 32.9	. .	+ 18.5	68 41 12.6	
26																	
27	297 8	8.2	8.0	9.2	8.8	36	. .	350	. .	312	. .	55.6	62 48 9.4	765	+ 1 53.2	113 56 23.8	+ 1.0
28	9 34	5.1	6.2	7.8	5.8	37	. .	320	. .	235	. .	55.6	350 21 5.4	. .	− 10.0	41 27 16.6	− 1.1
29	60 56	10.5	10.0	12.6	11.6	32	. .	695	. .	785	. .	55.6	298 59 15.2	. .	− 1 45.3	350 3 51.1	− 2.4
30	332 18	10.0	11.3	11.2	10.6	36	. .	442	. .	460	. .	55.6	27 42 13.7	. .	+ 30.8	78 49 5.7	− 0.2
31	42 54	2.7	4.0	5.5	3.8	31	. .	. .	920	. .	. .	55.6	317 0 57.3	. .	− 54.7	8 6 23.8	+ 0.9
32	312 56	17.7	17.0	17.8	17.0	36	. .	260	. .	240	. .	55.6	46 59 0.0	. .	+ 1 2.8	98 6 24.0	− 0.2
33	331 20	1.7	1.0	3.2	0.3	37	. .	722	. .	702	. .	55.6	28 36 23.8	. .	+ 32.0	79 43 17.0	− 1.3
34	345 24	6.3	7.0	6.8	6.2	34	. .	255	. .	232	. .	55.6	14 31 35.7	. .	+ 15.2	65 38 12.1	− 0.8
35	333 4	2.8	3.2	3.4	2.1	35	. .	622	. .	565	. .	55.6	26 51 52.6	. .	+ 29.8	77 58 43.6	− 1.8
36	347 40	6.8	5.6	7.2	6.7	. .	. .	335	. .	305	. .	55.6	12 16 53.7	. .	+ 12.8	63 23 27.7	+ 1.3
37	334 6	14.5	16.1	16.5	15.7	34	. .	930	. .	915	. .	55.6	25 49 55.1	785	+ 28.5	76 56 44.8	− 1.7
38																	
39	327 18	1.2	1.8	3.8	4.8	31	450	615	. .	. .	. .	56.1	32 36 50.4	. .	+ 37.6	83 43 49.2	
40	326 46	25.7	27.3	27.8	27.9	31	. .	. .	. .	. .	625	56.1	33 8 47.0	. .	+ 38.4	84 15 46.6	
41	49 38	9 18.6	21.5	22.6	23.5	33	. .	555	585	580	. .	56.1	310 17 10.8	783	− 1 9.2	1 22 22.8	− 0.9
42	337 18	2.4	0.0	1.0	2.9	37	. .	340	. .	365	. .	56.1	22 38 18.9	760	+ 24.3	73 45 4.4	+ 3.0
43	6 54	29.0	3.1	2.7	1.5	34	995	995	. .	. .	. .	56.1	353 1 43.2	. .	− 7.1	44 7 57.3	− 0.8
44	312 42	29.1	2.0	2.6	3.0	35	. .	. .	. .	390	390	56.1	47 13 48.6	. .	+ 1 3.0	98 21 12.8	+ 0.2
45	349 32	1.8	2.4	2.7	2.1	34	. .	505	. .	530	. .	56.1	10 23 36.1	758	+ 10.7	61 30 8.0	0.0
46	312 18	28.0	29.0	29.8	0.6	33	. .	940	. .	920	. .	58.4	47 37 26.2	860	+ 1 5.9	98 44 53.3	− 7.0
47	320 18	28.5	29.0	0.0	0.6	35	015	. .	. .	. .	130	58.4	39 37 41.0	. .	+ 49.8	90 44 55.0	− 7.7
48	320 18	28.5	29.0	0.0	0.6	35	. .	410	. .	405	. .	58.4	39 37 49.1	. .	+ 49.8	90 45 0.1	− 7.7
49	0 2	0.0	0.9	1.8	1.6	32	. .	560	. .	590	. .	58.4	359 53 7.5	. .	− 0.1	50 59 28.6	+ 1.3

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
5	30.182	69.0	36.5
9	30.218	64.0	44.0
11	. .	. .	56.0
27	. .	. .	48.0
37	. .	. .	45.0
41	30.230	66.0	49.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
6	−52 35.6	+ 16 10.7	. .	− 36 25.0
11	− 4.8	+ 16 1.7	. .	+ 15 56.9
12	− 4.8	− 16 1.7	. .	− 16 6.5
15	− 3.7	. .	− 0.7	− 4.4
25	− 0.2	. .	. .	− 0.2
39	− 4.7	+ 15 58.7	. .	+ 15 54.0
40	− 4.7	− 15 58.7	. .	− 16 3.4

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Apr. 4	1	48 Virginis	Ha.	49.0	51.6	53.3	59.4	1.3	3.5	9.6	11.2	13.7	57 1.40	— 0.65	. .	+18.97	12 57 19.72	— 1.00
	2	B. A. C. 4394	Ha.	22.4	25.0	26.5	32.8	34.8	36.9	43.2	44.7	47.0	1 34.81	— 0.73	. .	+18.97	13 1 53.05	— 0.99
	3	58 Virginis	Ha.	15.2	17.8	19.2	25.6	27.7	29.7	36.0	37.6	40.0	10 27.64	— 0.75	. .	+18.98	13 10 45.87	— 0.99
	4	Polaris, S. P.	Ha	. .	. .	40.0	54.0	53.5	0.5	. .	. .	. .	11 10.35	—30.38	. .	+18.98	1 10 58.95	+ 2.46
	5	80 Virginis	Ha.	22.1	24.7	26.2	32.5	34.5	36.5	42.7	44.3	46.8	28 34.48	— 0.68	. .	+18.98	13 28 52.78	— 0.99
	6	*m* Virginis	Ha.	24.1	26.7	28.2	34.4	36.4	38.4	44.7	46.1	48.8	34 36.42	— 0.72	. .	+18.98	13 34 54.68	— 0.98
	7	η Bootis	Ha.	4.9	7.7	9.3	15.7	18.0	20.2	26.6	28.0	30.9	48 17.92	— 0.35	+18.97	+18.98	13 48 36.55	— 0.04
	8	94 Virginis	Ha.	1.6	4.2	5.7	11.8	13.9	15.9	22.2	23.6	26.3	59 13.91	— 0.73	. .	+18.98	13 59 32.16	— 0.96
	9	κ Virginis	Ha.	34.4	37.0	38.6	44.9	46.9	49.0	55.2	56.8	59.3	5 46.90	— 0.75	. .	+18.98	14 6 5.13	— 0.95
	10	B. A. C. 4722	Ha.	50.8	53.6	55.2	1.6	3.8	6.0	12.5	14.0	16.8	8 3.81	— 0.86	. .	+18.98	14 8 21.93	— 0.96
	11	λ Virginis	Ha.	41.3	43.9	45.5	51.8	53.9	56.0	2.2	3.7	6.4	11 53.86	— 0.79	. .	+18.98	14 12 12.05	— 0.94
	12	θ Bootis	Ha.	13.0	17.1	19.6	29.7	32.9	36.2	46.3	49.0	53.0	20 32.98	+ 0.37	. .	+18.99	14 20 32.34	+ 0.04
	13	ϵ Bootis	Ha.	52.3	55.2	56.9	3.9	6.2	8.5	15.4	17.2	20.0	39 6.18	— 0.22	+19.04	+18.99	14 39 24.95	— 0.07
	14	α^1 Libræ	Ha.	. .	. .	15.0	17.2	19.3	21.4	23.4	. .	. .	43 19.26	— 0.83	. .	+18.99	14 43 37.42	. .
	15	α^2 Libræ	Ha.	. .	. .	26.5	28.6	30.7	32.7	34.9	. .	. .	43 30.68	— 0.83	+19.04	+18.99	14 43 48.84	— 0.06
	16	α Pegasi	E.	50.6	53.5	55.0	1.3	3.5	5.6	12.0	13.5	16.0	58 3.43	— 0.54	+18.91	+18.83	22 58 21.72	— 0.05
5	17	Sun I, N.	E.	10.7	13.3	14.9	21.0	23.0	25.2	31.5	32.9	35.6	58 23.12	— 0.67	. .	+18.84	0 58 41.29	. .
	18	Sun II, S.	E.	20.0	22.5	24.0	30.2	32.3	34.4	40.5	41.9	44.5	0 32.26	— 0.67	. .	+18.84	1 0 50.43	. .
	19	Polaris	E.	. .	. .	. .	36.0	3.0	26.0	54.0	. .	. .	10 2.02	+31.82	. .	+18.84	1 10 51.68	— 4.75
	20	α Arietis	E.	24.2	26.0	28.8	35.4	37.7	39.8	46.6	47.2	50.8	59 37.61	— 0.41	+18.83	+18.85	1 59 56.05	+ 0.03
	21	Mercury I, C.	E.	56.2	58.9	0.5	7.0	9.2	11.3	17.5	19.3	21.9	8 9.09	— 0.52	. .	+18.85	2 8 27.42	+ 0.38
	22	α Ceti	E.	3.6	6.2	7.8	13.9	16.0	18.0	24.1	25.7	28.4	55 15.97	— 0.71	+18.76	+18.85	2 55 34.11	+ 0.11
	23	α Persei	E.	. .	. .	44.2	47.3	50.5	53.8	56.7	. .	. .	14 50.50	+ 0.21	. .	+18.85	3 15 9.56	+ 0.07
	24	B. A. C. 3345	E.	9.9	12.7	14.3	20.5	22.7	24.7	31.0	32.6	35.2	40 22.62	— 0.56	. .	+18.89	9 40 40.95	— 0.56
	25	μ Leonis	E.	57.1	0.1	1.9	8.6	11.0	13.2	20.0	22.0	24.7	45 10.96	— 0.32	+18.80	+18.89	9 49 29.53	+ 0.08
	26	α Leonis	E.	. .	. .	11.3	13.5	15.5	17.6	19.6	. .	. .	1 15.50	— 0.55	+18.90	+18.90	10 1 33.85	— 0.04
	27	16 Sextantis	E.	2.4	5.0	6.6	12.7	14.7	16.8	23.0	24.5	27.1	2 14.76	— 0.64	. .	+18.90	10 2 33.02	— 0.64
	28	Anonymous	E.	18.0	20.6	22.2	28.5	30 6	32.8	39.2	40.7	43.4	9 30.67	— 0.52	. .	+18.90	10 9 49.05	— 0.70
	29	Anonymous	E.	58.6	1.3	2.9	9.3	11.4	13.5	19.7	21.4	24.0	12 11.34	— 0.55	. .	+18.90	10 12 29.69	— 0.70
	30	Anonymous	E.	13.6	16.0	17.6	23.9	25.9	28.0	34.2	35.8	38.4	20 25.93	— 0.62	. .	+18.90	10 20 44.21	— 0.71
	31	B. A. C. 3579	E.	27.6	30.1	31.8	38.0	40.2	42.3	48.5	50.3	52.9	21 40.19	— 0.52	. .	+18.90	10 21 58.57	— 0.76
	32	*i* Leonis	E.	. .	. .	. .	. .	. .	. .	12.2	13.9	16.6	25 3.85	— 0.52	. .	+18.90	10 25 22.23	— 0.77
	33	Anonymous	E.	21.5	24.0	25.7	32.0	34.0	36.0	42.3	43.7	46.4	29 33.96	— 0.76	. .	+18.90	10 29 52.10	— 0.71
	34	Anonymous	E.	. .	. .	37.4	39.5	41.7	43.7	46.0	. .	. .	31 41.66	— 0.76	. .	+18.90	10 31 59.80	— 0.72
	35	37 Sextantis	E.	55.8	58.3	59.9	6.3	8.3	10.3	16.4	18.0	20.6	39 8.21	— 0.64	. .	+18.90	10 39 26.47	— 0.78
	36	Anonymous	E.	10.4	13.0	14.6	21.3	23.2	25.5	32.0	33.5	36.3	46 23.31	— 1.00	. .	+18.90	10 46 41.21	— 0.78
	37	55 Leonis	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	38	*d* Leonis	E.	27.0	29.8	31.3	37.4	39.4	41.6	47.8	49.3	51.9	53 39.50	— 0.68	. .	+18.90	10 53 57.72	— 0.81
	39	χ Leonis	E.	55.0	57.6	59.0	5.4	7.4	9.4	15.9	17.2	19.8	58 7.41	— 0.62	. .	+18.90	10 58 25.69	— 0.84
	40	δ Leonis	E.	47.2	50.0	51.6	57.9	0.3	2.6	9.0	10.8	13.5	7 0.32	— 0.41	+18.97	+18.90	11 7 18.81	— 0.13
	41	Anonymous	E.	15.2	18.2	20.3	27.6	30.1	32.7	40.0	42.0	45.1	12 30.13	— 1.35	. .	+18.90	11 12 47.68	— 0.97
	42	Anonymous	E.	50.9	54.5	56.0	3.8	6.3	8.8	16.9	18.7	21.7	18 6.40	— 1.38	. .	+18.91	11 18 23.93	— 1.01
	43	τ Leonis	E.	51.7	54.3	55.9	2.0	4.1	6.1	12.1	13.8	16.3	21 4.03	— 0.69	+18.82	+18.91	11 21 22.25	+ 0.07
	44	Anonymous	E.	. .	. .	54.5	57.5	0.6	3.4	5.8	. .	. .	28 0.36	— 1.54	. .	+18.91	11 28 17.73	— 1.14
	45	*v* Leonis	E.	54.3	56.7	58.3	4.4	6.4	8.5	14.6	16.1	18.8	30 6.46	— 0.74	+18.89	+18.91	11 30 24.63	— 0.02
	46	*v* Virginis	E.	47.0	49.7	51.3	57.4	59.5	1.6	7.9	9.3	11.9	38 59.51	— 0.63	. .	+18.91	11 39 17.79	— 0.95
	47	β Virginis	E.	32.0	34.7	36.3	42.4	44.4	46.5	52.7	54.2	56.7	43 44.43	— 0.70	. .	+18.91	11 44 2.64	— 0.94
	48	*o* Virginis	E.	11.7	14.2	15.8	22.0	24.0	26.0	32.2	33.9	36.4	58 24.02	— 0.60	+18.89	+18.91	11 58 42.33	0.00
	49	η Virginis	E.	. .	. .	0.1	2.2	4.3	6.4	8.5	. .	. .	13 4.30	— 0.74	+18.87	+18.91	12 13 22.47	+ 0.02
	50	Anonymous	E.	. .	. .	3.9	6.0	8.0	10.0	12.1	. .	. .	14 8.00	— 0.76	. .	+18.91	12 14 26.15	— 0.98

4. Bisections at wires B_2, B_3, and C_1.
14, 34. Wire A used.
32. Bisections at wires B_3 and VI.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	318 4	29.2	0.5	1.2	2.3	33	. .	380	. .	360	. .	58.4	41 51 19.1	. .	+ 54.0	92 58 34.3	− 8.7
2	312 46	3.2	4.3	5.4	5.4	38	. .	090	. .	080	. .	58.4	47 10 35.3	. .	+ 1 5.0	98 18 1.5	− 8.5
3	311 10	28.6	29.1	0.7	1.0	31	805	815	. .	. .	. .	58.4	48 44 54.2	. .	+ 1 8.7	99 52 24.1	− 8.3
4	52 24	1.5	3.0	3.1	5.3	38	275	290	170	. .	. .	58.4	307 32 35.1	. .	− 1 18.3	358 37 38.0	+ 1.8
5	316 18	1.1	1.6	2.6	2.5	33	. .	720	. .	730	. .	58.4	43 37 25.7	. .	+ 57.5	94 44 44.4	− 8.1
6	313 0	26.5	27.1	28.6	28.6	36	. .	565	. .	560	. .	58.4	46 56 5.0	870	+ 1 4.5	98 3 30.7	− 7.8
7	340 4	29.6	0.4	0.1	1.0	32	. .	178	. .	188	. .	58.4	19 51 0.5	. .	+ 21.8	70 57 43.5	+ 1.1
8	312 46	1.6	2.4	3.5	2.5	33	. .	855	. .	845	. .	58.4	47 9 28.1	875	+ 1 5.1	98 16 54.4	− 7.1
9	311 22	1.1	1.5	3.5	3.4	32	910	875	. .	. .	. .	58.4	48 33 13.4	. .	+ 1 8.4	99 40 43.0	− 6.8
10	303 26	2.5	2.9	3.3	4.5	29	. .	. .	. .	530	520	58.4	56 28 22.5	. .	+ 1 31.1	107 36 14.8	− 5.8
11	308 16	3.0	2.9	4.0	4.3	33	. .	. .	. .	180	190	58.4	51 39 18.8	. .	+ 1 16.4	102 46 56.4	− 6.3
12	13 28	24.1	26.3	27.0	26.8	34	. .	. .	. .	295	270	58.4	346 27 29.0	. .	− 14.6	37 33 35.6	+ 1.7
13	348 40	29.4	29.5	0.0	0.1	38	. .	990	. .	990	. .	58.4	11 16 44.6	. .	+ 12.1	62 23 17.9	+ 1.7
14	305 34	28.1	28.6	27.5	0.6	39	040	960	. .	. .	. .	58.4	54 20 8.1	. .	+ 1 24.2	105 27 53.5	
15	305 34	28.1	28.6	27.5	0.6	39	. .	. .	. .	445	465	58.4	54 22 50.3	880	+ 1 26.3	105 30 37.8	+ 2.8
16	335 34	10 1.3	2.7	5.0	0.3	37	. .	400	. .	400	. .	57.9	24 22 22.2	808	+ 26.8	75 29 10.2	+ 0.1
17	327 42	11.9	11.8	13.7	14.3	35	762	812	. .	. .	. .	57.9	32 14 7.6	. .	+ 36.8	83 21 5.6	
18	327 10	12.9	12.5	15.5	15.2	35	. .	. .	. .	710	615	57.9	32 46 7.6	. .	+ 37.5	83 53 6.3	
19	49 38	3.3	4.8	7.3	6.3	32	650	. .	. .	. .	610	57.9	310 17 12.3	760	− 1 8.7	1 24 24.8	+ 0.8
20	343 54	24.7	27.0	28.2	28.5	36	. .	700	. .	700	. .	57.9	16 2 6.2	. .	+ 16.6	67 8 44.0	+ 0.7
21	336 56	1.5	1.5	3.3	3.9	35	. .	283	. .	150	. .	57.9	22 59 48.8	. .	+ 24.6	74 6 34.6	
22	324 38	0.5	2.2	3.2	3.2	35	. .	615	. .	620	. .	57.9	35 17 54.7	. .	+ 40.7	86 24 56.6	0.0
23	10 26	26.7	1.5	1.7	1.0	34	. .	485	. .	438	. .	57.9	349 29 35.2	. .	− 10.7	40 35 45.7	+ 1.6
24	333 4	1.5	1.5	1.7	0.3	35	. .	665	. .	703	. .	56.4	26 51 53.2	. .	+ 30.2	77 58 44.6	− 1.4
25	347 38	7.8	6.5	7.6	7.1	31	. .	295	. .	288	. .	56.4	12 16 51.9	. .	+ 13.0	63 23 26.1	0.0
26	333 38	8.5	8.5	10.8	8.7	34	. .	500	. .	502	. .	56.4	26 17 42.9	. .	+ 29.4	77 24 33.5	+ 3.3
27	327 50	29.8	0.0	0.9	29.8	33	. .	195	. .	220	. .	56.4	32 5 14.0	. .	+ 37.4	83 12 12.6	− 3.4
28	335 24	4.7	5.0	6.5	4.0	32	. .	962	. .	995	. .	56.4	24 31 15.5	. .	+ 27.2	75 38 3.9	− 1.8
29	333 40	6.5	6.5	8.8	7.3	31	. .	685	. .	600	. .	56.4	26 15 43.2	. .	+ 29.4	77 22 33.8	− 2.0
30	328 54	5.8	5.5	7.5	6.5	32	. .	010	. .	006	. .	56.4	31 1 1.8	. .	+ 35.8	82 7 58.8	− 3.4
31	336 2	29.0	29.8	0.0	28.8	33	. .	970	. .	980	. .	56.4	23 53 25.1	. .	+ 26.4	75 0 12.7	− 1.7
32	335 50	28.0	28.5	0.7	28.5	34	. .	758	. .	742	. .	56.4	24 5 36.4	. .	+ 26.7	75 12 24.3	− 1.8
33	319 56	8.0	8.5	8.0	8.5	34	. .	322	. .	230	. .	56.4	39 59 38.5	. .	+ 49.9	91 6 49.6	− 5.5
34	319 56	8.0	8.5	8.0	8.5	31	. .	. .	. .	830	925	56.4	39 56 27.5	. .	+ 49.8	91 3 38.5	− 5.5
35	328 6	9.7	10.7	12.3	10.7	36	. .	550	. .	540	. .	56.4	31 50 16.0	. .	+ 37.0	82 57 14.2	− 3.9
36	304 28	4.0	3.5	5.7	5.2	37	. .	300	. .	355	. .	56.4	55 28 21.7	830	+ 1 26.5	106 36 9.4	− 8.3
37	322 28	5.8	5.5	7.5	7.0	35	. .	. .	. .	190	145	56.4	37 27 50.4	. .	+ 45.7	88 34 57.3	− 5.2
38	325 22	3.2	3.0	4.5	2.5	39	. .	086	. .	088	. .	56.4	34 34 47.5	. .	+ 41.1	85 41 49.8	− 4.7
39	329 4	4.7	5.0	5.7	5.6	33	. .	740	. .	745	. .	56.4	30 51 27.4	. .	+ 35.6	81 58 24.2	− 4.0
40	342 16	3.3	6.4	5.0	3.8	35	. .	478	. .	470	. .	56.4	17 39 53.4	. .	+ 19.0	68 46 33.6	+ 1.4
41	286 36	1.2	11.2	13.0	13.0	37	. .	930	. .	830	. .	56.4	73 20 37.5	. .	+ 3 16.8	124 30 15.5	− 9.6
42	284 48	5.3	6.0	7.5	5.0	31	. .	330	. .	188	. .	56.4	75 6 49.7	. .	+ 3 40.7	126 16 51.6	− 9.6
43	324 36	4.0	4.9	6.5	6.1	33	. .	300	. .	415	. .	56.4	35 19 21.6	. .	+ 42.2	86 26 25.0	− 0.4
44																	
45	320 56	1.5	3.3	4.3	2.3	35	. .	. .	. .	868	850	56.4	38 59 57.4	. .	+ 48.2	90 7 6.8	− 0.4
46	328 18	10.2	10.0	11.3	11.2	36	. .	760	. .	775	. .	56.4	31 38 19.3	. .	+ 36.7	82 45 17.2	− 5.0
47	323 32	1.7	3.3	4.0	4.0	35	. .	420	. .	435	. .	56.4	36 23 51.2	. .	+ 43.9	87 30 56.3	− 5.8
48	330 30	9 26.0	26.7	27.3	27.2	38	. .	390	. .	430	. .	56.4	29 26 30.6	. .	+ 33.6	80 33 25.4	− 0.6
49	321 6	9.7	9.0	10.7	11.5	32	. .	600	. .	525	. .	56.4	38 50 15.6	. .	+ 48.0	89 57 24.8	+ 0.1
50	319 20	29.7	0.0	2.7	1.0	35	. .	185	. .	030	. .	56.4	40 35 43.9	. .	+ 51.1	91 42 56.2	− 6.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
8	30.264	67.5	32.5
16	. .	. .	48.0
19	. .	. .	53.5
36	. .	. .	39.0

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
17	− 4.7	+ 16 0.3	. .	+ 15 55.6
18	− 4.7	− 16 0.3	. .	− 16 5.0
21	− 3.9	− 0.6	. .	− 4.5

For summary of the elements of reduction see page 3.

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Apr. 5	1	Anonymous . .	E.	31.0	34.4	36.6	. .	. .	. .	51.7	53.3	55.7	29 43.78	— 0.63	. .	+18.91	12 30 2.06	— 1.03
	2	Anonymous . .	E.	8.9	11.4	13.3	19.0	21.1	23.2	29.4	31.1	33.6	38 21.22	— 0.84	. .	+18.91	12 38 39.29	— 0.99
	3	38 Virginis . . .	E.	8.6	11.1	12.7	18.7	20.8	22.9	28.9	30.5	33.0	46 20.80	— 0.78	. .	+18.91	12 46 38.93	— 1.00
	4	Anonymous . .	E.	. .	. .	8.8	10.9	13.0	15.0	17.9	. .	. .	59 12.96	— 0.84	. .	+18.91	12 59 31.03	— 1.00
	5	θ Virginis . . .	E.	50.0	52.5	54.0	0.1	2.2	4.3	10.5	12.0	14.7	3 2.26	— 0.82	+19.00	+18.92	13 3 20.36	— 0.12
	6	Polaris, S. P. . .	E.	. .	. .	53.0	34.0	9.0	42.0	17.0	. .	. .	11 7.00	—34.32	. .	+18.92	1 10 51.60	— 4.80
	7	a Virginis . . .	E.	57.4	0.2	1.6	8.0	10.0	12.1	18.2	20.0	22.5	18 10.00	— 0.90	+19.02	+18.92	13 28 28.02	— 0.12
9	8	a Pegasi	F.	. .	. .	. .	. .	4.7	6.7	11.0	12.6	15.2	58 2.55	+ 0.08	+19.27	+19.39	22 58 22.02	+ 0.15
	9	Venus II, N. . .	F.	43.5	46.0	47.5	53.7	55.7	57.8	4.0	5.5	8.0	45 55.74	+ 0.06	. .	+19.39	23 46 15.19	— 0.38
	10	a Andromedæ . .	F.	11.5	14.4	16.2	23.2	25.7	27.9	34.9	36.4	39.4	1 25.51	+ 0.09	+19.25	+19.39	0 1 44.99	+ 0.16
	11	Polaris	F.	. .	. .	48.0	13.0	38.0	2.0	26.0	. .	. .	10 37.40	— 1.65	. .	+19.39	1 10 55.14	— 1.45
10	12	Sun I, N. . . .	F.	27.9	30.5	32.1	38.3	40.2	42.3	48.6	50.1	52.6	16 40.29	+ 0.08	. .	+19.39	1 16 59.76	. .
	13	Sun II, S. . . .	F.	37.4	40.0	41.5	47.8	49.7	51.8	58.0	59.6	2.4	18 49.80	+ 0.08	. .	+19.38	1 19 9.26	. .
	14	Mercury I, S. . .	F.	18.0	20.6	22.5	28.8	30.9	33.0	39.4	41.0	43.8	20 30.89	+ 0.08	. .	+19.38	2 20 50.35	+ 0.31
	15	β Ursæ Minoris, S.P.	F.	. .	. .	7.5	0.3	31.9	44.1	36.4	. .	. .	50 52.04	+ 0.35	. .	+19.38	14 51 11.77	+ 0.62
	16	Moon I, S. . . .	F.	11.0	13.8	15.4	21.8	24.0	26.2	32.8	34.4	37.0	29 24.04	— 0.09	. .	+19.38	3 29 43.33	+66.03
	17	η Tauri	F.	18.4	21.3	23.0	29.7	32.0	34.1	40.8	42.4	45.2	39 31.88	+ 0.09	+19.27	+19.38	3 39 51.35	+ 0.11
	18	γ^1 Eridani. . . .	F.	30.2	33.0	34.6	40.8	43.0	45.1	51.4	52.8	55.6	51 42.94	+ 0.05	+19.29	+19.38	3 52 2.37	+ 0.13
	19	β Geminorum . .	F.	. .	. .	4.5	6.9	9.3	11.5	13.9	. .	. .	37 9.22	+ 0.07	+19.36	+19.38	7 37 28.67	— 0.01
	20	ϕ Geminorum . .	F.	6.2	9.2	10.9	17.7	. .	22.4	29.3	30.9	33.9	45 20.06	+ 0.07	+19.39	+19.38	7 45 39.51	— 0.09
	21	λ Ursæ Minoris, S.P.	F.	. .	. .	23.0	36.0	48.0	59.0	. .	. .	. .	51 47.55	+ 2.73	. .	+19.38	19 52 9.66	— 2.55
	22	Uranus I, C. . .	F.	38.9	41.7	43.4	. .	. .	. .	0.9	2.6	5.3	56 52.13	+ 0.07	. .	+19.38	7 57 11.58	. .
	23	Uranus II . . .	F.	. .	. .	48.0	50.2	52.4	54.6	56.9	. .	. .	56 52.42	+ 0.07	. .	+19.38	7 57 11.87	. .
	24	15 Argus	F.	. .	. .	. .	. .	. .	. .	55.0	56.7	59.5	1 46.09	+ 0.03	+19.44	+19.38	8 2 5.50	— 0.12
	25	Anonymous . .	F.	57.6	0.4	1.7	8.0	10.2	12.4	18.7	20.2	22.9	12 10.23	+ 0.06	. .	+19.38	10 12 29.67	— 0.65
	26	Anonymous . .	F.	12.4	15.0	16.5	22.7	24.8	26.8	33.0	34.6	37.0	20 24.76	+ 0.06	. .	+19.38	10 20 44.20	— 0.66
	27	Anonymous . .	F.	20.4	22.9	24.4	30.5	32.6	34.6	40.8	42.2	44.8	29 32.58	+ 0.06	. .	+19.38	10 29 52.02	— 0.67
	28	Anonymous . .	F.	33.5	36.2	37.7	44.0	46.1	48.2	54.4	56.0	58.6	39 46.08	+ 0.04	. .	+19.38	10 40 5.50	— 0.70
	29	Anonymous . .	F.	52.2	54.9	56.5	2.6	4.7	6.7	13.0	14.5	17.3	46 4.71	+ 0.05	. .	+19.38	10 46 24.14	— 0.72
	30	55 Leonis	F.	38.7	40.1	44.4	46.5	48.5	50.5	52.6	56.6	58.2	48 48.46	+ 0.06	. .	+19.38	10 49 7.90	— 0.75
	31	d Leonis	F.	26.0	28.6	30.1	36.2	38.3	40.3	46.5	48.0	50.6	53 38.29	+ 0.06	. .	+19.38	10 53 57.73	— 0.78
	32	ρ^2 Leonis	F.	32.5	35.0	36.6	42.8	44.8	46.8	53.0	54.6	57.0	56 44.79	+ 0.06	. .	+19.38	10 57 4.23	— 0.78
	33	χ Leonis	F.	53.6	56.4	57.9	4.0	6.1	8.2	14.4	16.0	18.5	58 6.12	+ 0.06	. .	+19.38	10 58 25.56	— 0.81
	34	Anonymous . .	F.	. .	45.1	47.1	. .	51.6	54.2	58.8	0.5	3.4	7 49.43	+ 0.02	. .	+19.38	11 8 8.83	— 0.87
	35	Anonymous . .	F.	. .	. .	22.8	25.5	28.3	30.7	33.4	. .	. .	12 28.14	+ 0.01	. .	+19.38	11 12 47.53	— 0.93
	36	Anonymous . .	F.	. .	. .	17.9	20.3	22.8	25.2	30.0	31.8	. .	19 20.13	+ 0.01	. .	+19.38	11 19 39.52	— 0.98
	37	Anonymous . .	F.	27.2	30.7	32.8	41.1	44.1	46.8	55.1	56.8	0.8	34 43.93	— 0.01	. .	+19.38	11 35 3.30	— 1.11
	38	Anonymous . .	F.	. .	. .	36.6	38.6	40.6	43.0	44.7	. .	. .	23 40.70	+ 0.06	. .	+19.38	12 24 0.14	— 1.00
	39	Anonymous . .	F.	. .	. .	. .	. .	. .	. .	23.7	24.6	26.0	24 14.63	+ 0.06	. .	+19.38	12 24 34.07	— 1.04
	40	Asia	F.	54.8	56.9	58.5	4.7	6.6	8.8	14.0	15.6	19.2	34 6.57	+ 0.05	. .	+19.38	12 34 26.00	. .
	41	12 Canum Venat. .	F.	28.5	31.8	33.5	41.6	44.3	46.9	54.9	56.7	0.0	49 44.24	+ 0.06	+19.49	+19.38	12 50 3.68	— 0.11
	42	B. A. C. 4394 . .	F.	21.2	23.9	25.4	31.6	33.6	35.6	42.0	43.5	46.0	1 33.64	+ 0.05	. .	+19.38	13 1 53.07	— 1.03
	43	θ Virginis . . .	F.	. .	. .	. .	. .	3.0	5.1	9.0	10.6	13.3	3 0.92	+ 0.05	+19.50	+19.38	13 3 20.37	— 0.14
	44	Polaris, S. P. . .	F.	. .	. .	. .	1.0	37.0	9.0	. .	. .	. .	10 35.67	+ 2.18	. .	+19.38	1 10 58.23	+ 1.37
	45	a Virginis . . .	F.	56.2	58.8	0.3	6.5	8.7	10.8	17.0	18.5	21.0	18 8.64	+ 0.05	+19.47	+19.38	13 18 28.07	— 0.11
	46	ζ Virginis . . .	F.	39.7	42.2	43.7	49.9	52.0	53.8	0.1	1.5	4.0	27 51.88	+ 0.06	+19.45	+19.38	13 28 11.32	— 0.07
	47	Polaris	S.	. .	. .	57.0	23.0	47.0	11.0	36.0	. .	. .	10 46.80	. .	. .	. .	. . . .	. .
11	48	Sun I, N. . . .	S.	8.0	10.5	12.0	18.3	20.5	22.6	28.5	30.2	32.8	20 20.38	. .	. .	. .	. . . .	. .
	49	Sun II, S. . . .	S.	17.5	20.0	21.7	27.9	30.0	32.0	38.2	39.8	42.5	22 29.96	. .	. .	. .	. . . .	. .

1, 2, 4, 39, 40. Wire A used.
15, 16. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	328 24	5.5	5.8	6.8	5.6	27	. .	. .	. .	500	408	56.4	31 27 17.6	. .	+ 36.5	82 34 15.3	— 5.9
2	314 6	7.8	11.2	10.2	9.2	31	. .	980	. .	030	. .	56.4	45 46 30.3	. .	+ 1 1.2	96 53 52.7	— 6.7
3	318 12	1.8	3.2	4.5	2.2	37	. .	182	. .	220	. .	56.4	41 44 18.1	. .	+ 53.2	92 51 32.5	— 7.0
4	314 18	8.2	9.1	9.8	9.2	21	. .	. .	. .	850	750	56.4	45 34 27.0	. .	+ 1 0.8	96 41 49.0	— 6.6
5	316 12	9.0	9.0	10.2	8.8	36	. .	070	. .	098	. .	56.4	43 44 7.2	. .	+ 57.0	94 51 25.4	+ 1.0
6	52 24	0.0	6.5	2.8	2.0	38	210	. .	152	. .	235	56.4	307 32 33.1	. .	— 1 17.4	358 37 36.9	+ 1.1
7	310 34	1.7	2.2	3.5	2.0	36	. .	640	. .	662	. .	56.4	49 22 9.0	. .	+ 1 9.4	100 29 39.6	+ 0.7
8	335 34	6.9	9.8	10.4	8.2	37	. .	154	. .	156	. .	56.6	24 22 23.6	704	+ 26.0	75 29 10.8	+ 0.8
9	317 56	4.0	6.9	5.3	5.2	33	. .	. .	. .	274	240	56.6	41 59 20.7	685	+ 51.3	93 6 33.2	
10	349 26	6.2	8.9	9.0	7.2	38	. .	. .	. .	130	120	56.6	10 30 37.6	682	+ 10.6	61 37 9.4	— 0.1
11	49 38	0.1	3.9	2.5	2.8	32	914	918	922	930	935	56.6	310 17 12.2	. .	— 1 6.7	1 22 26.7	+ 1.3
12	329 34	14.3	17.8	15.5	14.5	36	076	112	. .	. .	. .	56.6	30 22 13.6	652	+ 33.2	81 29 8.0	
13	329 2	8.3	12.0	11.3	9.5	36	. .	. .	. .	160	170	56.6	30 54 10.2	. .	+ 33.9	82 1 5.3	
14	338 20	7.3	6.7	7.5	6.3	35	. .	070	. .	112	. .	56.6	21 35 50.0	. .	+ 22.4	72 42 33.6	
15	66 20	2.5	4.0	4.6	5.1	37	. .	367	. .	395	. .	56.6	293 36 22.1	. .	— 2 8.3	344 40 35.0	+ 2.5
16	337 46	10 4.2	5.3	6.0	5.4	36	. .	760	680	635	. .	56.6	22 10 12.8	. .	+ 23.0	73 16 57.0	
17	344 44	2.5	3.7	2.8	1.7	32	. .	066	. .	066	. .	56.6	15 10 59.4	. .	+ 15.3	66 17 35.9	+ 1.1
18	307 10	1.9	4.7	4.9	5.2	32	. .	132	. .	138	. .	56.6	52 45 1.7	622	+ 1 13.8	103 52 36.7	+ 2.1
19	349 22	5.0	7.4	6.6	3.9	33	. .	. .	. .	515	520	56.5	10 33 24.6	. .	+ 10.6	61 39 56.4	+ 1.8
20	348 8	8.8	11.1	10.5	8.0	34	. .	400	. .	408	. .	56.5	11 47 42.0	. .	+ 11.8	62 54 15.0	+ 1.9
21																	
22	342 22	7.6	8.5	6.7	5.1	39	. .	622	. .	630	. .	56.5	17 34 59.6	. .	+ 17.9	68 41 38.7	
23																	
24	297 8	9.0	10.0	8.9	8.5	36	. .	. .	. .	598	600	56.5	62 48 14.8	654	+ 1 49.6	113 56 25.6	+ 2.7
25	333 40	6.2	11.6	8.3	4.5	34	. .	830	. .	840	. .	56.5	26 15 46.7	. .	+ 28.1	77 22 36.0	— 1.7
26	328 56	1.2	4.1	3.2	1.1	40	. .	280	. .	200	. .	56.5	31 1 4.4	. .	+ 34.3	82 7 59.9	— 3.2
27	319 56	5.0	7.5	5.8	4.6	34	770	756	. .	. .	. .	56.5	39 59 43.6	685	+ 47.8	91 6 52.6	— 5.5
28	308 16	9.5	10.3	9.6	9.4	34	. .	850	. .	860	. .	56.5	51 39 49.8	. .	+ 1 12.1	102 47 23.1	— 7.9
29	310 18	10.7	12.0	10.9	10.8	33	. .	366	. .	370	. .	56.5	49 37 27.4	688	+ 1 7.1	100 44 55.7	— 7.6
30	322 28	7.5	8.9	8.9	7.2	35	. .	. .	. .	300	300	56.5	37 27 54.1	. .	+ 43.8	88 34 59.1	— 5.1
31	325 22	5.5	7.1	6.6	4.3	39	. .	132	. .	138	. .	56.5	34 34 50.9	. .	+ 39.4	85 41 51.5	— 4.6
32	321 44	7.8	10.2	9.5	7.2	34	. .	650	. .	652	. .	56.5	38 11 44.8	. .	+ 45.0	89 18 51.0	— 5.4
33	329 4	6.0	7.5	6.4	5.2	33	. .	792	. .	808	. .	56.5	30 51 29.3	692	+ 34.2	81 58 24.7	— 3.8
34	291 38	11.8	13.6	13.2	13.2	41	. .	008	. .	010	. .	56.5	68 19 26.5	. .	+ 2 22.8	119 28 10.5	—10.2
35	286 36	8.2	10.2	8.7	8.8	38	. .	856	. .	856	. .	56.5	73 20 49.5	. .	+ 3 8.8	124 30 19.5	—10.5
36	284 54	8.7	10.7	9.0	8.2	37	. .	195	. .	205	. .	56.5	75 2 24.2	. .	+ 3 30.8	126 12 16.2	—10.5
37	278 44	11.6	14.3	11.8	11.0	32	. .	214	. .	214	. .	56.5	81 11 10.5	700	+ 5 52.8	132 23 24.5	—10.3
38																	
39	329 2	8.5	10.5	9.2	8.5	34	. .	. .	. .	060	060	56.5	30 51 2.0	. .	+ 34.4	81 57 57.6	— 5.7
40	315 48	10.4	12.7	11.8	11.3	41	. .	000	. .	978	. .	56.5	44 6 50.8	. .	+ 55.8	95 14 7.8	— 3.3
41	0 2	7.1	9.6	8.6	6.9	32	. .	050	. .	056	. .	56.5	359 53 4.5	. .	— 0.1	50 59 25.6	— 0.4
42	312 46	7.5	8.4	7.8	6.5	38	. .	. .	. .	136	130	56.5	47 10 37.0	. .	+ 1 2.3	98 18 0.5	— 7.3
43	316 12	11.0	13.0	13.1	11.6	36	. .	. .	. .	024	060	56.5	43 44 9.5	. .	+ 55.3	94 51 26.0	+ 1.5
44	52 24	5.6	7.4	6.5	6.4	37	. .	670	668	660	. .	56.5	307 32 28.8	735	— 1 15.2	358 37 34.8	+ 0.4
45	310 34	13.7	15.5	14.5	14.2	36	112	108	. .	106	100	56.5	49 22 12.8	738	+ 1 7.4	100 29 41.4	+ 2.2
46	321 6	9.5	10.8	10.0	10.1	33	. .	334	. .	324	. .	56.5	38 49 25.9	740	+ 46.6	89 56 33.7	+ 1.1
47																	
48																	
49																	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
13	29.950	73.0	63.6
46	30.100	73.0	51.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
9	— 3.9	+ 5.7	. .	+ 1.8
12	— 4.4	+ 15 58.6	. .	+ 15 54.2
13	— 4.5	— 15 58.6	. .	— 16 3.1
14	— 4.3	— 4.5	. .	— 8.8
16	—20 50.3	— 15 12.9	. .	— 36 3.2
22	— 0.2	. . .	. .	— 0.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Apr. 11	1	Anonymous . .	S.	. .	. .	49.3	51.5	53.5	55.5	57.7	. .	. .	30 53.50	+ 0.26	. .	+19.29	10 31 13.05	— 0.66
	2	Anonymous . .	S.	33.4	36.0	37.7	43.8	46.0	48.1	54.3	56.0	58.6	39 45.99	+ 0.30	. .	+19.29	10 40 5.58	— 0.70
	3	Anonymous . .	S.	9.0	11.6	13.2	19.6	21.6	23.8	30.2	31.9	34.3	46 21.69	+ 0.31	. .	+19.29	10 46 41.29	— 0.73
	4	*a* Ursæ Majoris . .	S.	. .	. .	22.8	27.0	31.3	35.9	40.3	. .	. .	55 31.46	— 0.21	. .	+19.29	10 55 50.54	— 0.20
	5	Anonymous . .	S.	3.6	6.5	8.2	15.2	17.6	20.0	27.0	28.9	31.6	7 17.62	+ 0.35	. .	+19.29	11 7 37.26	— 0.86
	6	82 Leonis	S.	33.6	36.2	37.7	43.9	45.9	48.0	54.2	55.7	58.2	18 45.93	+ 0.24	. .	+19.29	11 19 5.46	— 0.86
	7	*τ* Leonis	S.	. .	. .	. .	. .	. .	6.8	10.9	12.5	15.0	21 2.73	+ 0.24	+19.16	+19.29	11 21 22.26	+ 0.11
	8	Anonymous . .	S.	27.0	30.5	32.8	41.1	43.7	46.6	54.7	56.6	0.4	35 43.71	+ 0.40	. .	+19.28	11 36 3.39	— 1.12
	9	*β* Leonis	S.	0.5	3.0	4.6	11.2	13.2	15.2	21.6	23.4	25.9	42 13.18	+ 0.20	+19.37	+19.28	11 42 32.66	— 0.11
	10	*o* Virginis . . .	S.	10.3	13.0	14.6	20.7	22.8	24.8	31.1	32.6	35.3	58 22.80	+ 0.22	+19.29	+19.28	11 58 42.30	— 0.03
	11	*q* Virginis . . .	S.	39.4	42.0	43.5	49.9	51.9	54.0	0.2	1.8	4.5	26 51.91	+ 0.28	. .	+19.28	12 27 11.47	— 0.99
	12	Asia	S.	. .	. .	. .	15.7	17.8	19.7	23.9	25.5	28.3	33 15.75	+ 0.27	. .	+19.28	12 33 35.30	. .
	13	38 Virginis . . .	S.	7.2	9.8	11.2	17.4	19.4	21.5	27.6	29.2	31.6	46 19.43	+ 0.26	. .	+19.28	12 46 38.97	— 1.03
	14	B. A. C. 4304 . .	S.	21.2	23.7	25.3	31.6	33.6	35.7	41.9	43.5	46.0	1 33.61	+ 0.28	. .	+19.28	13 1 53.17	— 1.03
	15	Polaris, S. P. . .	S.	. .	. .	14.0	48.0	23.0	. .	. .	. .	. .	10 23.20	+11.69	. .	+19.28	1 10 54.17	— 2.89
	16	*a*² Libræ	S.	16.7	19.4	20.9	27.3	29.3	31.5	38.0	39.5	42.1	43 29.41	+ 0.31	+19.29	+19.27	14 43 48.99	— 0.03
13	17	Moon I.	E.	46.7	49.8	51.6	58.5	0.7	3.0	9.9	11.7	14.5	9 0.71	+ 0.21	. .	+18.95	6 9 19.87	+68.08
	18	*δ* Ursæ Minoris, S.P.	E.	. .	. .	27.0	52.0	17.0	42.0	8.5	. .	. .	13 17.30	+ 9.00	. .	+18.95	18 13 45.25	— 1.62
	19	*γ* Geminorum . .	E.	46.3	49.0	50.6	57.0	59.0	1.1	7.7	9.3	11.9	29 59.10	+ 0.30	+18.99	+18.95	6 30 18.35	— 0.07
	20	*a* Canis Majoris .	E.	57.4	0.1	1.7	8.1	10.3	12.4	18.6	20.4	23.2	39 10.24	+ 0.55	+18.91	+18.94	6 39 29.73	— 0.05
	21	*ε* Canis Majoris .	E.	1.6	4.6	6.4	13.4	15.6	18.0	25.0	26.6	29.7	53 15.66	+ 0.65	+18.95	+18.94	6 53 35.25	— 0.06
	22	*δ* Canis Majoris .	E.	. .	. .	46.5	48.8	51.2	53.5	55.7	. .	. .	2 51.14	+ 0.63	+19.02	+18.94	7 3 10.71	— 0.13
	23	*δ* Geminorum . .	E.	55.7	58.5	0.2	6.8	9.0	11.2	17.8	19.5	22.1	12 8.98	+ 0.25	+18.98	+18.94	7 12 28.17	— 0.10
	24	*a*² Geminorum . .	E.	. .	. .	. .	6.4	8.7	11.2	16.0	17.9	21.0	26 6.41	+ 0.14	+18.91	+18.94	7 26 25.49	+ 0.27
	25	Jupiter I, N. . .	E.	23.4	26.2	27.8	. .	. .	. .	45.5	47.0	49.9	31 36.63	+ 0.25	. .	+18.94	7 31 55.82	. .
	26	Jupiter II, S. . .	E.	. .	. .	35.0	37.1	39.3	41.5	43.7	. .	. .	31 39.32	+ 0 25	. .	+18.94	7 31 58.51	. .
	27	*β* Geminorum . .	E.	55.5	58.4	0.1	7.0	9.5	11.7	18.7	20.5	23.3	37 9.41	+ 0.19	+19.00	+18.94	7 37 28.54	— 0.09
	28	*φ* Geminorum . .	E.	6.5	9.5	11.1	18.0	20.4	22.5	29.5	31.1	34.0	45 20.29	+ 0.20	+18.98	+18.94	7 45 39.43	— 0.12
	29	*λ* Ursæ Minoris, S.P.	E.	. .	. .	5.0	16.0	30.0	. .	. .	. .	. .	51 28.93	+27.16	. .	+18.93	19 52 15.02	— 0.29
	30	Uranus I, C. . .	E.	44.8	47.5	49.3	. .	. .	. .	6.8	8.4	11.2	56 58.00	+ 0.26	. .	+18.93	7 57 17.19	. .
	31	Uranus II . . .	E.	. .	. .	54.0	56.2	58.4	0.5	2.7	. .	. .	56 58.36	+ 0.26	. .	+18.93	7 57 17.59	. .
	32	*ε* Leonis	E.	2.9	5.6	7.4	14.0	16.3	18.5	25.2	27.0	29.8	38 16.30	+ 0.22	+18.90	+18.92	9 38 35.44	— 0.04
	33	B. A. C. 3345 . .	E.	9.0	11.7	13.2	19.5	21.5	23.6	29.9	31.5	34.3	40 21.58	+ 0.34	. .	+18.92	9 40 40.84	— 0.46
	34	*μ* Leonis	E.	56.4	59.3	1.0	8.0	10.2	12.5	19.4	21.0	24.0	45 10.20	+ 0.21	+18.93	+18.92	9 45 29.33	— 0.02
	35	*ν* Leonis	E.	48.8	51.4	53.0	59.3	1.4	3.5	9.8	11.5	14.2	51 1.43	+ 0.33	. .	+18.92	9 51 20.68	— 0.55
	36	*a* Leonis	E.	2.0	4.6	6.2	12.4	14.5	16.6	22.9	24.7	27.0	1 14.54	+ 0.33	+18.90	+18.92	10 1 33.79	— 0.02
	37	Anonymous . .	E.	. .	. .	25.5	27.6	29.7	31.9	34.0	. .	. .	9 29.74	+ 0.32	. .	+18.91	10 9 48.97	— 0.62
	38	Anonymous . .	E.	. .	. .	6.2	8.5	10.5	12.5	14.8	. .	. .	12 10.50	+ 0.33	. .	+18.91	10 12 29.74	— 0.62
	39	42 Leonis	E.	. .	. .	. .	36.4	38.6	40.8	43.0	. .	. .	14 38.63	+ 0.31	. .	+18.91	10 14 57.85	— 0.65
	40	Anonymous . .	E.	. .	. .	20.8	22.9	24.9	27.0	29.0	. .	. .	20 24.92	+ 0.37	. .	+18.91	10 20 44.20	— 0.63
	41	B. A. C. 3579 . .	E.	. .	. .	37.3	39.3	41.5	43.7	47.9	49.5	52.0	21 39.39	+ 0.32	. .	+18.91	10 21 58.62	— 0.68
	42	*i* Leonis	E.	. .	. .	1.0	3.0	5.2	7.3	11.6	13.2	16.0	25 3.12	+ 0.32	. .	+18.91	10 25 22.35	— 0.69
	43	Anonymous . .	E.	20.6	23.2	24.7	30.8	32.9	34.9	41.1	42.7	45.1	29 32.89	+ 0.44	. .	+18.91	10 29 52.24	— 0.64
	44	Anonymous . .	E.	. .	. .	. .	. .	. .	24.7	28.9	30.6	33.0	31 20.74	+ 0.44	. .	+18.91	10 31 40.09	— 0.65
	45	37 Sextantis . . .	E.	54.7	57.5	59.0	5.2	7.3	9.3	15.6	17.0	19.7	39 7.26	+ 0.38	. .	+18.91	10 39 26.55	— 0.71
	46	Anonymous . .	E.	9.0	11.7	13.4	19.6	21.9	24.0	30.4	32.0	34.8	46 21.87	+ 0.48	. .	+18.91	10 46 41.26	— 0.70
	47	55 Leonis	E.	. .	. .	. .	. .	. .	52.6	56.8	58.3	0.8	48 48.57	+ 0.42	. .	+18.91	10 49 7.90	— 0.73
	48	*d* Leonis	E.	26.2	28.8	30.4	36.4	38.5	40.6	46.8	48.4	50.8	53 38.54	+ 0.40	. .	+18.91	10 53 57.85	— 0.76
	49	*χ* Leonis	E.	54.0	56.5	58.0	4.3	6.4	8.5	14.7	16.3	18.8	58 6.39	+ 0.37	. .	+18.91	10 58 25.67	— 0.79
	50	*δ* Leonis	E.	. .	. .	55.1	57.5	59.6	1.9	4.1	. .	. .	6 59.64	+ 0.26	+18.93	+18.91	11 7 18.81	— 0.08

1, 8. Bisections at sets B and D.
12. Wire A used.
36. Telescope micrometer reading diminished one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. I.	II.	III.	IV.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympicsometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	317 50	10 2.2	6.6	4.5	2.0	37	. .	468	. .	448	. .	54.9	42 6 21.4	720	+ 52.0	93 13 34.6	— 6.0
2	308 16	10 20.5	23.7	20.7	20.0	34	. .	310	. .	310	. .	54.9	51 39 50.4	723	+ 1 12.8	102 47 24.4	— 8.1
3	304 28	5.5	7.7	6.0	4.6	37	. .	520	. .	474	. .	54.9	55 28 24.1	. .	+ 1 23.7	106 36 9.0	— 8.8
4	23 28	5.9	10.9	8.0	4.9	33	. .	520	. .	460	. .	54.9	336 27 25.7	727	— 25.2	27 33 21.7	— 0.2
5	291 42	5.5	8.4	6.2	5.9	34	. .	088	. .	082	. .	54.9	68 13 32.1	. .	+ 2 23.6	119 22 16.9	—10.3
6	325 4	6.3	9.9	7.8	5.5	38	. .	507	. .	601	. .	54.9	34 52 41.9	. .	+ 40.3	85 59 43.4	— 5.0
7	324 36	9.1	13.1	10.1	8.5	33	. .	. .	. .	. .	240	54.9	35 19 23.0	735	+ 41.0	86 26 25.2	— 0.1
8	278 44	15.1	18.6	14.3	13.5	31	. .	750	. .	726	. .	54.9	81 11 5.1	. .	+ 5 57.0	132 23 23.3	—10.4
9	336 20	2.0	6.3	4.6	2.1	36	. .	136	. .	178	. .	54.9	23 36 1.5	740	+ 25.3	74 42 48.0	+ 0.8
10	330 30	3.3	6.6	4.1	2.3	38	. .	140	. .	120	. .	54.9	29 26 32.1	. .	+ 32.8	80 33 26.1	+ 0.5
11																	
12	315 56	13.8	17.5	15.1	12.3	39	. .	088	. .	000	. .	54.9	43 58 37.4	. .	+ 56.1	95 5 54.7	— 3.3
13	318 12	6.7	10.4	7.9	5.8	37	. .	050	. .	066	. .	54.9	41 44 19.2	750	+ 51.8	92 51 32.2	— 7.0
14	312 46	12.8	16.4	13.6	11.8	37	. .	740	. .	810	. .	54.9	47 10 36.1	750	+ 1 2.7	98 18 0.0	— 7.4
15																	
16	305 34	10.4	13.0	10.3	9.2	39	. .	048	. .	080	. .	54.9	54 22 52.9	760	+ 1 21.2	105 30 35.3	— 0.3
17																	
18																	
19	337 32	10 18.0	25.0	21.8	20.1	30	. .	680	. .	680	. .	50.6	22 22 50.6	. .	+ 24.1	73 29 35.9	0.0
20	304 32	15.2	20.0	18.2	14.8	39	. .	270	. .	295	. .	51.0	55 25 58.7	. .	+ 1 22.4	106 32 42.3	— 0.7
21	292 16	16.7	21.2	17.3	17.5	33	. .	495	. .	525	. .	51.6	67 39 31.7	. .	+ 2 17.7	118 48 10.6	+ 0.5
22	294 54	16.4	20.7	17.8	18.2	40	. .	450	. .	462	. .	52.0	65 3 18.9	. .	+ 2 1.9	116 11 41.0	+ 1.1
23	343 16	10 9.8	14.8	11.8	8.6	37	. .	140	. .	110	. .	52.4	16 40 21.5	. .	+ 17.1	67 46 59.8	+ 0.4
24	353 12	7.5	10.7	9.5	6.0	33	. .	540	. .	560	. .	53.0	6 43 24.3	. .	+ 6.7	57 49 52.2	— 0.7
25	343 20	4.3	9.2	5.5	3.8	33	000	. .	. .	. .	985	53.2	16 35 13.3	. .	+ 17.0	67 41 51.5	
26	343 20	4.3	9.2	5.5	3.8	35	. .	280	. .	290	. .	53.2	16 35 48.4	. .	+ 17.0	67 42 26.6	
27	349 22	10.6	15.0	12.5	9.7	33	. .	228	. .	232	. .	53.4	10 33 23.3	. .	+ 10.6	61 39 55.1	+ 0.6
28	348 8	10.0	14.2	11.8	10.0	34	. .	440	. .	388	. .	53.8	11 47 41.5	. .	+ 11.9	62 54 14.6	+ 1.6
29																	
30	342 20	9.8	12.7	9.8	8.0	33	. .	040	. .	092	. .	54.8	17 35 20.3	. .	+ 18.1	68 41 59.6	
31																	
32	345 24	12.8	17.8	15.3	12.3	33	. .	805	. .	810	. .	54.8	14 31 36.2	695	+ 14.8	65 38 12.2	+ 0.3
33	333 4	15.8	19.1	14.0	13.0	34	. .	820	. .	840	. .	54.8	26 51 52.7	. .	+ 28.9	77 58 42.8	— 1.2
34	347 38	13.0	17.5	14.5	11.8	30	. .	892	. .	900	. .	54.8	12 16 51.2	. .	+ 12.5	63 23 24.9	— 0.4
35	334 6	15.6	20.0	17.5	15.6	34	. .	968	. .	960	. .	54.8	25 49 56.5	. .	+ 27.7	76 56 45.4	— 1.1
36	333 38	16.0	20.4	19.6	16.2	34	. .	955	. .	980	. .	54.8	26 17 42.1	. .	+ 28.3	77 24 31.6	+ 1.9
37	335 24	12.5	17.6	15.3	12.5	32	. .	530	. .	510	. .	54.8	24 31 16.3	. .	+ 26.1	75 38 3.6	— 1.0
38	333 40	9.8	15.0	11.3	9.0	34	. .	545	. .	555	. .	54.8	26 15 44.2	. .	+ 28.2	77 22 33.6	— 1.6
39	336 40	5.3	9.8	7.5	5.0	36	. .	065	. .	085	. .	54.8	23 16 3.3	. .	+ 24.6	74 22 49.1	— 0.8
40	328 54	7.3	12.0	10.2	8.0	31	. .	950	. .	960	. .	54.8	31 1 2.5	. .	+ 34.4	82 7 58.1	— 3.0
41	336 2	10.3	15.0	14.0	9.5	33	. .	. .	. .	270	250	54.8	23 53 25.3	. .	+ 25.4	75 0 11.9	— 1.1
42	335 50	6.8	9.6	7.0	5.0	34	. .	. .	. .	405	350	54.8	24 5 37.4	. .	+ 25.6	75 12 24.2	— 1.2
43	319 56	14.5	18.5	13.5	13.5	33	. .	080	. .	044	. .	54.8	39 59 40.4	. .	+ 48.0	91 6 49.6	— 5.5
44	319 44	16.2	20.5	15.3	15.5	33	. .	. .	. .	140	210	54.8	40 11 28.6	. .	+ 48.4	91 18 38.2	— 5.6
45	328 6	17.6	20.5	18.7	15.5	36	. .	220	. .	260	. .	54.8	31 50 17.0	. .	+ 35.6	82 57 13.8	— 3.9
46	304 28	15.0	18.8	17.0	15.5	36	. .	910	. .	865	. .	54.8	55 28 25.4	. .	+ 1 23.1	106 36 9.7	— 8.8
47	322 28	17.8	21.3	18.8	17.9	34	. .	. .	. .	538	510	54.8	37 27 51.4	. .	+ 43.9	88 34 56.5	— 5.1
48	325 22	8.0	12.5	10.1	6.8	38	. .	855	. .	863	. .	54.8	34 34 48.5	. .	+ 39.5	85 41 49.2	— 4.5
49	329 4	13.8	18.5	16.8	13.7	33	. .	230	. .	190	. .	54.8	30 51 28.0	. .	+ 34.2	81 58 23.4	— 3.7
50	342 16	13.0	17.5	13.0	12.8	34	825	800	. .	. .	. .	54.8	17 39 51.3	. .	+ 18.3	68 46 30.8	— 0.5

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
32	. .	. .	58.5

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
25	— 0.5	+ 17.6	. .	+ 17.1
26	— 0.5	— 17.6	. .	— 18.1
30	— 0.2	. .	. .	— 0.2

For summary of the elements of reduction see page 3.

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Apr. 13	1	Anonymous . .	E.	. .	. .	. .	. .	. .	. .	58.6	0.3	3.3	7 49.11	+ 0.66	. .	+18.91	11 8 8.68	— 0.85
	2	Anonymous . .	E.	13.3	16.2	18.2	25.9	28.3	30.9	38.2	40.0	43.2	12 28.24	+ 0.70	. .	+18.90	11 12 47.84	— 0.91
	3	Anonymous . .	E.	. .	. .	59.0	1.7	4.2	6.7	9.0	. .	. .	18 4.12	+ 0.72	. .	+18.90	11 18 23.74	— 0.95
	4	ϵ Leonis . . .	E.	15.7	18.4	20.0	26.0	28.0	30.0	36.3	37.8	40.4	23 28.07	+ 0.45	. .	+18.90	11 23 47.42	— 0.84
	5	Anonymous . .	E.	. .	. .	51.6	54.7	57.6	0.2	3.2	. .	. .	27 57.46	+ 0.79	. .	+18.90	11 28 17.15	— 1.08
	6	Anonymous . .	E.	27.0	30.6	32.5	40.9	43.8	46.7	55.2	57.7	0.5	34 43.88	+ 0.79	. .	+18.90	11 35 3.57	— 1.03
	7	ν Virginis . . .	E.	. .	. .	. .	. .	0.4	2.6	6.8	8.3	10.8	38 58.47	+ 0.37	. .	+18.90	11 39 17.74	— 0.93
	8	B. A. C. 4006 . .	E.	59.0	1.6	3.2	9.3	11.3	13.5	19.5	21.1	23.8	44 11.37	+ 0.46	. .	+18.90	11 44 30.73	— 0.90
	9	o Virginis . . .	E.	. .	. .	18.8	20.9	23.0	25.1	27.2	. .	. .	58 23.00	+ 0.36	+18.95	+18.90	11 58 42.26	— 0.07
	10	η Virginis . . .	E.	. .	. .	59.2	1.1	3.2	5.3	7.3	. .	. .	13 3.22	+ 0.43	+18.79	+18.90	12 13 22.55	+ 0.09
	11	Anonymous . .	E.	54.6	57.2	58.9	5.0	7.0	9.1	15.1	16.6	19.4	14 6.99	+ 0.44	. .	+18.90	12 14 26.33	— 0.98
	12	q Virginis . . .	E.	39.8	42.4	44.0	50.0	52.1	54.2	0.5	2.0	4.7	26 52.19	+ 0.49	. .	+18.89	12 27 11.57	— 0.99
	13	Asia	E.	23.5	26.1	27.9	. .	. .	. .	. .	45.7	48.4	31 35.96	+ 0.46	. .	+18.89	12 31 55.31	. .
	14	28 Virginis . . .	E.	50.0	52.6	54.2	0.3	2.3	4.2	10.5	12.2	14.7	35 2.33	+ 0.48	. .	+18.89	12 35 21.70	— 1.01
	15	38 Virginis . . .	E.	7.5	10.0	11.7	17.8	19.9	21.9	28.0	29.6	32.0	46 19.82	+ 0.45	. .	+18.89	12 46 39.16	— 1.03
	16	Polyhymnia . .	E.	41.0	44.0	46.2	. .	. .	. .	. .	. .	. .	52 53.83	+ 0.47	. .	+18.89	12 53 13.19	. .
	17	48 Virginis . . .	E.	. .	. .	56.5	58.5	0.5	2.6	4.7	. .	. .	57 0.56	+ 0.45	. .	+18.89	12 57 19.90	— 1.05
	18	θ Virginis . . .	E.	49.0	51.5	53.0	59.1	1.1	3.2	9.5	11.0	13.5	3 1.21	+ 0.46	+18.81	+18.89	13 3 20.56	+ 0.04
	19	Polaris, S. P. .	E.	. .	. .	7.0	44.0	22.0	55.0	31.0	. .	. .	10 19.80	+21.53	. .	+18.89	1 11 0.22	+ 2.87
	20	Anonymous . .	E.	. .	. .	41.0	43.1	45.2	47.2	49.4	. .	. .	15 45.18	+ 0.49	. .	+18.89	13 16 4.56	— 1.06
	21	α Virginis . . .	E.	56.3	59.0	0.6	6.7	8.8	10.9	17.2	18.8	21.5	18 8.87	+ 0.51	+18.80	+18.89	13 18 28.27	+ 0.07
	22	ζ Virginis . . .	E.	39.7	42.4	44.0	50.1	52.2	54.3	0.3	1.7	4.5	27 52.13	+ 0.43	+18.85	+18.89	13 28 11.45	+ 0.04
14	23	δ Ursæ Minoris, S.P.	F.	. .	. .	29.5	54.5	20.0	46.5	12.5	. .	. .	13 20.60	+ 6.55	. .	+18.75	18 13 45.90	— 1.25
	24	51 Cephei	F.	. .	2.0	35.5	. .	. .	. .	. .	. .	39.5	39 24.77	— 8.03	. .	+18.74	6 39 35.48	+ 0.76
	25	α Canis Majoris .	F.	57.7	0.4	1.9	8.4	10.4	12.7	19.0	20.6	23.4	39 10.50	+ 0.52	+18.66	+18.74	6 39 29.76	0.00
	26	δ Canis Majoris .	F.	37.6	40.7	42.4	49.2	51.4	53.7	0.5	2.2	5.0	2 51.41	+ 0.56	+18.80	+18.74	7 3 10.71	— 0.11
	27	δ Geminorum .	F.	55.9	58.6	0.2	6.9	9.1	11.4	18.1	19.5	22.3	12 9.11	+ 0.31	+18.77	+18.74	7 12 28.16	— 0.09
	28	Polaris	F.	. .	. .	. .	. .	. .	. .	. .	22.0	9.0	10 38.30	+ 3.23	. .	+18.78	1 11 0.31	+ 2.55
16	29	Sun I	S.	. .	. .	. .	. .	. .	. .	56.0	57.6	0.4	38 47.78	+ 0.18	. .	+18.78	1 39 6.74	. .
	30	Sun II	S.	45.2	47.9	49.4	55.8	58.0	0.0	6.3	7.7	0.4	40 57.86	+ 0.18	. .	+18.78	1 41 16.82	. .
	31	Moon I	S.	38.9	41.7	43.4	50.2	52.4	54.6	1.3	3.0	5.9	49 52.38	+ 0.20	. .	+18.74	8 50 11.32	+66.56
	32	α Hydræ	S.	46.8	49.4	50.9	57.0	59.2	1.4	7.6	9.0	11.5	20 59.20	+ 0.15	+18.76	+18.74	9 21 18.09	— 0.05
	33	β^1 Cephei, S. P. .	S.	. .	. .	48.9	42.6	36.5	30.7	24.6	. .	. .	26 36.66	— 0.05	. .	+18.74	21 26 55.35	— 2.81
	34	β^2 Cephei, S. P. .	S.	. .	. .	51.2	45.2	39.2	33.0	27.2	. .	. .	26 39.16	— 0.05	. .	+18.74	21 26 57.85	— 0.31
	35	ϵ Leonis	S.	3.1	5.9	7.6	14.3	16.4	18.7	25.5	27.2	30.0	38 16.52	+ 0.20	+18.66	+18.74	9 38 35.46	+ 0.02
	36	μ Leonis	S.	. .	. .	5.9	8.2	10.5	12.7	15.0	. .	. .	45 10.46	+ 0.21	+18.63	+18.74	9 45 29.41	+ 0.10
	37	79 Draconis, S. P. .	S.	. .	. .	7.7	2.1	55.2	47.9	40.4	. .	. .	50 55.06	— 0.11	. .	+18.74	21 51 13.69	— 0.11
	38	16 Sextantis . . .	S.	1.6	4.2	5.7	12.0	14.0	16.0	22.3	23.9	26.5	2 14.02	+ 0.17	. .	+18.74	10 2 32.93	— 0.51
	39	32 Ursæ Majoris. .	S.	. .	. .	15.2	20.3	25.5	30.5	35.4	. .	. .	8 25.38	+ 0.43	. .	+18.74	10 8 44.55	+ 0.06
	40	82 Leonis	S.	34.2	36.9	38.5	44.5	46.6	48.7	54.9	56.5	59.0	18 46.64	+ 0.17	. .	+18.73	11 19 5.54	— 0.83
	41	28 Virginis . . .	S.	50.5	53.0	54.6	0.8	2.9	5.0	11.2	12.7	15.2	35 2.88	+ 0.16	. .	+18.73	12 35 21.77	— 0.97
	42	48 Virginis . . .	S.	. .	. .	56.9	59.0	1.0	3.1	5.1	. .	. .	57 1.02	+ 0.16	. .	+18.72	12 57 19.90	— 1.08
	43	Polaris, S. P. .	S.	. .	. .	. .	. .	. .	8.0	51.0	1.0	. .	10 45.17	— 3.23	. .	+18.72	1 11 0.66	+ 2.86
	44	α Virginis . . .	S.	. .	. .	7.2	9.3	11.6	13.6	17.8	19.4	21.9	18 9.42	+ 0.15	+18.62	+18.72	13 18 28.29	+ 0.08
	45	75 Virginis . . .	S.	31.0	33.7	35.4	41.8	43.9	46.0	52.2	53.9	56.5	25 43.82	+ 0.14	. .	+18.72	13 26 2.68	— 1.10
	46	m Virginis . . .	S.	23.6	26.2	27.9	34.0	36.0	38.2	44.3	46.0	48.5	34 36.08	+ 0.15	. .	+18.72	13 34 54.95	— 1.09
	47	94 Virginis . . .	S.	1.1	3.7	5.3	11.5	13.6	15.7	21.8	23.5	25.9	59 13.57	+ 0.15	. .	+18.72	13 59 32.44	— 1.09
	48	κ Virginis . . .	S.	. .	. .	42.3	44.5	46.5	48.6	50.7	. .	. .	5 46.52	+ 0.15	. .	+18.72	14 6 5.39	— 1.09
	49	λ Virginis . . .	S.	40.9	43.5	45.0	51.5	53.6	55.6	2.0	3.6	6.2	11 53.54	+ 0.15	. .	+18.72	14 12 12.41	— 1.09
	50	α^1 Libræ	S.	6.2	8.9	10.5	. .	. .	. .	27.5	29.0	31.7	43 18.97	+ 0.14	. .	+18.71	14 43 37.82	. .

6, 13, 16. Wire A used.
34, 37, 48. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. I.	II.	III.	IV.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1																	
2	286 36	19.0	21.3	18.7	15.8	38	. .	100	. .	250	. .	54.8	73 20 47.1	. .	+ 3 9.2	124 30 17.5	—11.0
3	284 48	15.0	18.3	16.2	17.3	30	. .	330	. .	220	. .	54.8	75 6 43.8	. .	+ 3 32.2	126 16 37.2	—11.0
4	318 44	9.2	13.2	10.5	8.6	30	. .	780	. .	800	. .	54.8	41 10 45.6	. .	+ 50.1	92 17 56.9	— 6.2
5	278 38	17.5	22.7	16.7	17.8	41	. .	. .	. .	800	900	54.8	81 19 43.2	. .	+ 5 58.7	132 32 3.1	—13.1
6	278 44	11.8	17.1	9.5	9.8	32	. .	140	. .	090	. .	54.8	81 11 4.7	. .	+ 5 53.7	132 23 19.6	—10.9
7	328 18	18.8	23.1	19.8	18.3	36	. .	. .	. .	518	540	54.8	31 38 23.3	. .	+ 35.3	82 45 19.8	— 4.6
8	316 26	14.3	19.5	16.5	14.5	35	. .	865	. .	945	. .	54.8	43 30 9.9	. .	+ 54.4	94 37 25.5	— 6.8
9	330 30	6.0	10.8	9.7	6.3	37	. .	932	. .	940	. .	54.8	29 26 33.2	. .	+ 32.4	80 33 26.8	+ 1.3
10	321 6	13.5	18.7	14.0	14.5	36	. .	470	. .	470	. .	54.8	38 50 17.6	. .	+ 46.2	89 57 25.0	+ 0.3
11	319 20	3.0	8.4	4.8	3.0	35	. .	. .	. .	223	269	54.8	40 35 48.3	. .	+ 49.2	91 42 58.7	— 6.6
12	312 18	16.9	21.0	18.8	17.3	33	. .	020	. .	025	. .	54.8	47 37 27.9	. .	+ 1 2.9	98 44 52.0	— 7.4
13	316 12	13.0	17.3	15.9	13.2	29	. .	. .	. .	224	290	54.8	43 42 25.8	. .	+ 54.9	94 49 41.9	— 3.2
14	314 16	14.0	18.2	16.5	13.2	37	. .	470	. .	485	. .	54.8	45 40 33.3	. .	+ 58.8	96 47 53.3	— 7.3
15	318 12	9.0	13.3	11.2	8.2	37	. .	980	. .	003	. .	54.8	41 44 20.8	710	+ 51.2	92 51 33.2	— 7.5
16	314 54	9.0	13.4	11.2	11.2	39	. .	. .	. .	410	358	54.8	45 0 24.1	. .	+ 57.5	96 7 42.8	— 2.3
17	318 4	12.7	17.7	14.3	11.5	32	. .	838	. .	832	. .	54.8	41 51 20.6	. .	+ 51.4	92 58 33.2	— 7.1
18	316 12	10 13.0	17.0	16.0	12.0	36	. .	030	. .	995	. .	54.8	43 44 9.8	. .	+ 54.9	94 51 25.9	+ 1.4
19	52 24	9.2	13.4	11.2	11.0	37	300	. .	335	. .	355	54.8	307 32 26.6	. .	— 1 14.7	358 37 33.1	— 0.2
20	312 24	11.2	16.8	11.0	11.8	33	. .	. .	. .	450	610	54.8	47 31 29.8	. .	+ 1 2.7	98 38 53.7	— 7.4
21	310 34	11.4	14.3	9.8	10.2	36	. .	322	. .	368	. .	54.8	49 22 11.8	. .	+ 1 6.9	100 29 39.9	+ 0.6
22	321 6	10 12.3	15.6	12.0	10.2	33	. .	230	. .	250	. .	54.8	38 49 25.3	. .	+ 46.2	89 56 32.7	+ 0.1
23	54 24	4.1	9.7	8.7	5.2	31	. .	. .	986	. .	. .	55.2	305 31 0.8	. .	— 1 18.5	356 36 3.5	+ 0.2
24																	
25	304 32	9.7	13.0	13.0	10.7	39	. .	554	. .	592	. .	55.2	55 25 1.9	622	+ 1 21.3	106 32 44.4	+ 1.4
26																	
27	343 16	9.0	11.9	6.0	7.3	37	. .	186	. .	186	. .	55.2	16 40 22.4	626	+ 16.8	67 47 0.4	+ 1.0
28																	
29																	
30																	
31																	
32	312 56	3.3	4.8	29.6	0.4	32	. .	075	. .	110	. .	58.9	46 59 1.2	816	+ 1 3.5	98 6 25.9	+ 1.6
33	71 0	9 27.0	29.4	23.5	24.3	36	. .	. .	. .	473	. .	58.9	288 56 1.6	. .	— 2 51.5	339 59 31.3	— 2.4
34	71 0	9 27.0	29.4	23.5	24.3	36	654	. .	. .	. .	. .	58.9	288 56 5.1	818	— 2 51.5	339 59 34.8	+ 1.1
35	345 24	4.4	6.1	1.0	0.6	34	. .	280	. .	302	. .	58.9	14 31 36.1	820	+ 15.4	65 38 12.7	+ 1.0
36	347 40	9 28.5	0.7	24.6	26.1	39	. .	660	. .	660	. .	58.9	12 16 53.1	820	+ 12.9	63 23 27.2	+ 2.2
37	67 54	2.9	6.0	0.9	1.6	34	. .	. .	. .	090	090	58.9	292 1 32.5	820	— 2 26.0	343 5 27.7	— 0.1
38	327 50	9 26.1	28.1	22.6	23.3	33	. .	388	. .	382	. .	58.9	32 5 14.1	. .	+ 37.3	83 12 12.6	— 3.0
39	26 46	3.9	6.9	0.8	0.2	32	. .	649	. .	657	. .	58.9	333 9 12.5	827	— 30.1	24 15 3.6	+ 0.9
40	325 4	3.3	5.5	0.4	0.1	38	. .	495	. .	465	. .	58.9	34 52 39.7	850	+ 41.8	85 59 42.7	— 4.8
41	314 16	11.8	13.3	8.7	8.3	37	. .	345	. .	390	. .	58.9	45 40 30.7	863	+ 1 1.6	96 47 53.5	— 7.3
42	318 4	10 0.1	2.2	25.5	26.5	33	. .	397	. .	403	. .	58.9	41 51 17.8	. .	+ 54.0	92 58 33.0	— 7.1
43																	
44	310 34	3.0	4.9	29.2	29.2	36	. .	. .	. .	. .	530	58.9	49 22 8.8	872	+ 1 10.3	100 29 40.3	+ 0.7
45	306 22	3.0	5.0	29.1	0.0	38	. .	390	. .	420	. .	58.9	53 34 37.9	. .	+ 1 21.8	104 42 20.9	— 7.7
46	313 0	28.8	0.9	25.4	24.7	36	. .	. .	. .	420	465	58.9	46 56 3.3	877	+ 1 4.6	98 3 29.1	— 7.6
47	312 46	5.0	6.5	1.4	1.1	33	. .	697	. .	709	. .	58.9	47 9 27.4	882	+ 1 5.3	98 16 53.9	— 7.6
48	311 22	6.4	8.1	3.5	3.8	32	. .	. .	. .	690	650	58.9	48 33 13.5	. .	+ 1 8.6	99 40 43.3	— 7.5
49	308 16	5.9	7.1	2.1	3.1	33	. .	070	. .	094	. .	58.9	51 39 18.9	. .	+ 1 16.5	102 46 56.6	— 7.4
50	305 34	4.6	5.0	29.1	0.2	28	. .	742	. .	. .	. .	58.9	54 20 10.2	886	+ 1 24.4	105 27 55.8	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
15	. .	. .	58.0
27	. .	. .	68.8

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum..
	′ ″	′ ″	′ ″	° ′ ″

For summary of the elements of reduction see page 3.

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Apr. 16	1	α^2 Libræ	S.	17.7	20.4	21.9	. .	. .	. .	38.9	40.5	43.0	43 30.40	+ 0.14	+18.54	+18.71	14 43 49.25	+ 0.16
	2	α Pegasi	E.	50.9	53.5	55.0	1.2	3.4	5.5	11.8	13.5	16.0	58 3.42	+ 0.03	+18.60	+18.44	22 58 21.89	— 0.13
	3	α Andromedæ	E.	12.5	15.3	17.0	24.0	26.4	28.7	35.5	37.5	40.4	1 26.37	+ 0.07	+18.52	+18.44	0 1 44.88	— 0.06
	4	γ Pegasi	E.	. .	. .	14.5	16.7	18.9	21.0	23.1	. .	. .	6 18.84	+ 0.03	+18.54	+18.44	0 6 37.31	— 0.10
	5	Venus I, N.	E.	16.3	18.8	20.3	. .	. .	. .	36.8	38.5	41.0	17 28.62	— 0.01	. .	+18.43	0 17 47.04	+ 0.56
	6	Venus II, S.	E.	. .	. .	25.4	27.4	29.4	31.5	33.5	. .	. .	17 29.44	— 0.01	. .	+18.43	0 17 47.86	— 0.26
	7	Polaris	E.	. .	. .	. .	8.0	36.0	0.0	23.0	. .	. .	10 34.02	. .	. .	. .	. . . .	. .
17	8	Sun I, N.	E.	18.1	20.9	22.4	28.5	30.6	32.7	39.0	40.6	43.2	42 30.67	+ 0.02	. .	+18.43	1 42 49.12	. .
	9	Sun II, S.	E.	28.0	31.1	32.7	38.8	40.9	43.0	49.3	50.8	53.5	44 40.90	+ 0.02	. .	+18.43	1 44 59.35	. .
	10	α Hydræ	E.	47.4	50.0	51.6	57.9	59.8	1.9	8.0	9.6	12.2	20 59.82	— 0.05	+18.32	+18.38	9 21 18.15	+ 0.03
	11	ε Leonis	E.	3.5	6.4	8.2	14.7	17.0	19.3	26.0	27.8	30.6	38 17.06	+ 0.02	+18.28	+18.38	9 38 35.46	+ 0.04
	12	Moon I, N.	E.	58.7	1.4	3.0	9.6	11.7	14.0	20.5	22.3	24.9	41 11.79	+ 0.01	. .	+18.38	9 41 30.18	+65.58
	13	μ Leonis	E.	. .	. .	. .	. .	. .	15.4	20.0	21.8	24.6	45 10.89	+ 0.03	+18.36	+18.38	9 45 29.30	+ 0.01
	14	α Leonis	E.	2.9	5.5	7.2	13.3	15.5	17.5	23.8	25.3	27.9	1 15.43	0.00	+18.29	+18.38	10 1 33.81	+ 0.05
	15	16 Sextantis	E.	. .	. .	10.3	12.4	14.6	16.7	18.8	. .	. .	2 14.56	— 0.02	. .	+18.38	10 2 32.92	— 0.50
	16	γ^1 Leonis	E.	23.9	26.7	28.3	34.7	37.0	39.1	45.7	47.4	50.0	12 36.98	+ 0.02	+18.38	+18.38	10 12 55.38	— 0.02
	17	42 Leonis	E.	26.6	29.2	30.9	37.1	39.3	41.5	47.8	49.4	52.0	14 39.31	— 0.02	. .	+18.38	10 14 57.67	— 0.60
	18	45 Leonis	E.	. .	. .	31.3	33.2	35.3	37.4	39.5	. .	. .	20 35.34	— 0.03	. .	+18.38	10 20 53.69	— 0.61
	19	B. A. C. 3579	E.	. .	. .	35.8	38.0	40.2	42.2	44.4	. .	. .	21 40.12	— 0.02	. .	+18.38	10 21 58.48	— 0.64
	20	i Leonis	E.	. .	. .	59.5	1.7	3.8	6.0	8.3	. .	. .	25 3.86	0.00	. .	+18.38	10 25 22.24	— 0.65
	21	l Leonis	E.	1.4	4.0	5.7	12.0	14.0	16.1	22.4	24.0	26.6	42 14.02	— 0.01	+18.35	+18.38	10 42 32.39	+ 0.03
19	22	Groombridge 1620	Ha.	. .	. .	41.4	4.9	28.0	51.1	13.6	. .	. .	10 27.80	+ 2.79	. .	+18.56	10 10 49.15	— 8.64
	23	49 Leonis	Ha.	48.9	51.5	53.0	59.2	1.3	3.4	9.7	11.2	13.8	28 1.33	— 0.13	. .	+18.56	10 28 19.76	— 0.62
	24	l Leonis	Ha.	1.5	4.0	5.6	11.8	14.0	16.0	22.3	23.9	26.4	42 13.94	— 0.12	+18.52	+18.56	10 42 32.38	+ 0.04
	25	Anonymous	Ha.	53.6	56.0	57.6	3.7	5.8	7.9	14.3	15.9	18.3	46 5.90	— 0.23	. .	+18.56	10 46 24.23	— 0.65
	26	α Ursæ Majoris	Ha.	5.2	10.7	13.9	27.2	31.6	36.3	49.4	52.6	58.1	55 31.67	+ 0.35	. .	+18.56	10 55 50.58	+ 0.03
	27	Anonymous	Ha.	59.0	1.9	3.5	9.6	11.6	13.7	20.0	21.5	24.0	3 11.64	— 0.12	. .	+18.56	11 3 30.08	— 0.78
	28	Anonymous	Ha.	. .	. .	16.7	19.0	21.3	23.7	28.5	30.3	33.0	7 19.03	— 0.35	. .	+18.56	11 7 37.24	— 0.79
	29	75 Leonis	Ha.	. .	. .	20.7	22.6	24.6	26.6	28.6	. .	. .	10 24.62	— 0.16	. .	+18.56	11 10 43.02	— 0.77
	30	Moon I, N.	Ha.	7.5	10.3	11.9	18.2	20.3	22.4	28.7	30.3	32.9	20 20.28	— 0.13	. .	+18.56	11 20 38.71	+64.32
	31	ν Virginis	Ha.	46.9	49.5	51.0	57.2	59.2	1.3	7.5	9.0	11.6	38 59.24	— 0.14	. .	+18.56	11 39 17.66	— 0.90
	32	β Virginis	Ha.	. .	. .	40.1	42.2	44.2	46.2	48.3	. .	. .	43 44.20	— 0.16	. .	+18.56	11 44 2.60	— 0.89
	33	B. A. C. 4006	Ha.	. .	. .	. .	. .	. .	. .	20.6	21.9	24.5	44 12.26	— 0.20	. .	+18.56	11 44 30.62	— 0.87
	34	o Virginis	Ha.	11.4	14.0	15.5	21.9	23.9	26.0	32.0	33.5	36.3	58 23.83	— 0.13	+18.58	+18.56	11 58 42.26	— 0.04
	35	4 Draconis	Ha.	. .	. .	36.3	46.5	56.7	7.3	17.0	. .	. .	5 56.76	— 0.18	. .	+18.56	12 6 15.14	— 0.30
	36	η Virginis	Ha.	51.8	54.4	55.9	2.0	4.0	6.0	12.1	13.7	16.3	13 4.02	— 0.18	+18.59	+18.56	12 13 22.40	— 0.65
	37	β Corvi	Ha.	9.5	12.2	13.8	20.6	22.7	24.9	31.6	33.3	36.0	27 22.73	— 0.30	+18.57	+18.56	12 27 40.99	— 0.05
	38	γ^1 Virginis	Ha.	41.2	43.6	45.0	. .	. .	. .	1.3	2.9	5.4	34 53.23	— 0.18	. .	+18.56	12 35 11.61	— 1.02
	39	γ^2 Virginis	Ha.	. .	. .	49.1	51.2	53.2	55.4	57.4	. .	. .	34 53.26	— 0.18	. .	+18.56	12 35 11.64	— 1.02
	40	32^1 Camelopardalis	Ha.	. .	. .	16.5	36.8	56.7	16.8	37.2	. .	. .	47 56.80	+ 2.43	. .	+18.56	12 48 17.79	— 8.33
	41	32^2 Camelopardalis	Ha.	. .	. .	24.0	44.1	4.0	24.6	45.2	. .	. .	48 4.38	+ 2.43	. .	+18.56	12 48 25.37	— 0.75
	42	48 Virginis	Ha.	49.2	51.8	53.4	59.4	1.5	3.6	9.7	11.2	13.8	57 1.51	— 0.19	. .	+18.56	12 57 19.88	— 1.07
	43	50 Virginis	Ha.	33.8	36.5	38.0	44.0	46.2	48.3	54.5	56.0	58.6	2 46.21	— 0.23	. .	+18.56	13 3 4.54	— 1.07
	44	Polaris, S. P.	Ha.	. .	. .	41.0	14.0	51.0	24.0	0.0	. .	. .	10 50.00	. .	. .	. .	. . . .	. .
	45	α Virginis	Ha.	57.5	0.0	1.6	7.8	9.9	11.9	18.5	19.5	22.3	18 9.89	— 0.23	+18.55	+18.56	13 18 28.22	— 0.01
	46	38 Cassiopeæ, S. P.	Ha.	. .	. .	34.0	28.2	23.0	16.8	11.2	. .	. .	21 22.64	— 0.85	. .	+18.56	1 21 40.35	+ 0.25
20	47	υ Leonis	S.	. .	. .	2.2	4.3	6.4	8.5	10.5	. .	. .	30 6.38	— 0.16	+18.32	+18.36	11 30 24.58	0.00
	48	β Leonis	S.	1.7	4.4	5.9	12.5	14.5	16.6	22.9	24.5	27.0	42 14.44	— 0.09	+18.35	+18.36	11 42 32.71	— 0.01
	49	B. A. C. 4006	S.	0.0	2.5	4.0	10.1	12.3	14.4	20.4	22.0	24.6	44 12.26	— 0.18	. .	+18.36	11 44 30.44	— 0.87

1. Telescope micrometer reading increased one revolution in reduction.
22. Bisections at set C.
30, 40, 41, 46, 47. Bisections at sets B and D.
35. Bisections at wires II and III.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	305 34	4.6	5.0	29.1	0.2	38	. .	. .	. .	. .	240	58.9	54 22 51.0	. .	+ 1 24.5	105 30 36.7	+ 0.8
2	335 34	7.0	7.5	3.1	3.4	37	. .	168	. .	190	. .	58.9	24 22 22.6	. .	+ 26.5	75 29 10.3	+ 0.5
3	349 26	4.8	6.0	2.5	3.0	38	. .	350	. .	300	. .	58.9	10 30 39.2	. .	+ 10.8	61 37 11.2	+ 1.3
4	335 30	3.0	5.0	0.8	0.2	32	. .	. .	. .	245	235	58.9	24 25 3.8	. .	+ 26.4	75 31 51.4	+ 0.6
5	321 16	7.0	9.0	4.7	6.3	33	358	. .	. .	. .	368	58.9	38 39 25.4	. .	+ 46.5	89 46 33.1	
6	321 16	7.0	9.0	4.7	6.3	34	. .	120	. .	040	. .	58.9	38 39 36.4	. .	+ 46.5	89 46 44.1	
7	49 38	4.8	9.0	3.7	4.0	32	. .	845	. .	790	. .	58.9	310 17 15.8	. .	− 1 8.2	1 22 28.8	+ 1.2
8	332 4	3.1	5.5	0.5	2.3	34	295	272	. .	. .	. .	58.9	27 51 35.4	730	+ 30.6	78 58 27.2	
9	331 32	0.5	3.5	29.8	0.6	33	. .	. .	. .	920	910	58.9	28 23 28.7	. .	+ 31.2	79 30 21.1	
10	312 56	5.3	6.5	2.3	4.2	32	. .	000	. .	958	. .	58.3	46 59 1.4	. .	+ 1 2.6	98 6 25.2	+ 0.9
11	345 24	3.2	5.3	1.0	4.5	34	. .	320	. .	270	. .	58.3	14 31 36.1	772	+ 15.2	65 38 12.5	+ 0.9
12	339 48	6.0	7.0	2.7	4.7	35	. .	310	575	845	. .	58.3	20 7 57.3	. .	+ 21.5	71 14 40.0	
13																	
14	333 38	8.8	8.7	5.5	7.3	. .	. .	270	. .	285	. .	58.3	26 17 39.8	. .	+ 29.0	77 24 30.0	− 0.5
15	327 50	0.5	1.8	27.8	1.0	33	. .	. .	. .	140	170	58.3	32 5 15.2	. .	+ 36.8	83 12 13.2	− 2.9
16	341 32	5.7	6.1	2.2	4.1	35	. .	910	. .	915	. .	58.3	18 24 1.9	. .	+ 19.5	69 30 42.6	+ 1.8
17	336 40	5.3	6.0	2.0	2.8	35	. .	920	. .	875	. .	58.3	23 16 1.1	. .	+ 25.2	74 22 47.5	− 0.4
18	331 28	9.6	9.8	6.0	7.8	36	. .	735	. .	740	. .	58.3	28 28 18.3	. .	+ 31.8	79 35 11 3	− 2.1
19	336 2	9.0	9.3	5.0	6.5	33	. .	285	. .	295	. .	58.3	23 53 24.5	. .	+ 26.0	75 0 11.7	− 0.8
20	335 50	9.7	9.2	6.5	6.2	34	. .	085	. .	075	. .	58.3	24 5 37.1	. .	+ 26.3	75 12 24.6	− 1.0
21	332 16	8.9	10.0	5.5	8.2	34	. .	960	. .	985	. .	58.3	27 39 51.0	. .	+ 30.8	78 46 43.0	+ 0.5
22	45 56	2.0	3.9	2.0	5.8	37	325	. .	380	. .	315	57.7	314 0 22.1	715	− 59.5	5 5 43.8	+18.0
23	330 22	0.0	1.1	28.6	2.2	37	955	. .	. .	. .	960	57.7	29 34 28.7	. .	+ 32.7	80 41 22.6	− 2.5
24	332 16	4.1	5.4	3.1	6.4	35	. .	300	. .	240	. .	57.7	27 39 49.6	718	+ 30.2	78 46 41.0	− 1.4
25	310 18	1.2	1.5	29.2	3.5	33	. .	760	. .	765	. .	57.7	49 37 24.9	. .	+ 1 7.6	100 44 53.7	− 7.9
26	23 28	1.7	2.6	28.0	2.5	33	. .	620	. .	655	. .	57.7	336 27 23.6	. .	− 25.1	27 33 19.7	− 0.5
27	330 52	29.6	0.5	28.0	1.5	40	. .	. .	. .	. .	770	57.7	29 5 11.3	. .	+ 32.1	80 12 4.6	− 3.0
28	291 42	2.0	1.6	29.8	3.1	34	. .	. .	. .	330	220	57.7	68 13 32.8	. .	+ 2 23.2	119 22 17.2	−11.3
29	323 46	3.4	4.0	1.1	6.0	36	. .	. .	. .	610	615	57.7	36 10 11.0	. .	+ 42.1	87 17 14.3	− 4.9
30	330 32	29.5	0.7	27.5	1.0	29	190	. .	300	. .	460	57.7	29 22 15.2	722	+ 32.4	80 29 8.8	
31	328 18	29.2	29.5	26.9	0.6	37	. .	480	. .	495	. .	57.7	31 38 20.0	. .	+ 35.5	82 45 16.7	− 4.3
32	323 32	1.4	2.3	29.5	3.9	35	475	470	. .	. .	. .	57.7	36 23 51.8	. .	+ 42.5	87 30 55.5	− 5.4
33	316 26	3.0	3.6	0.5	4.5	36	. .	. .	. .	515	490	57.7	43 30 8.5	. .	+ 54.7	94 37 24.4	− 6.8
34	330 30	26.5	27.0	24.3	28.5	38	445	. .	. .	. .	380	57.7	29 26 31.8	. .	+ 32.6	80 33 25.6	+ 0.5
35	39 22	29.5	1.5	27.9	2.7	38	460	490	. .	. .	. .	57.7	320 34 37.5	. .	− 47.4	11 40 11.3	− 1.8
36	321 6	4.4	4.9	2.1	6.5	36	970	. .	. .	. .	970	57.7	38 50 17.4	. .	+ 46.5	89 57 25.1	+ 0.6
37	298 22	0.2	1.0	27.9	3.0	33	430	. .	. .	. .	480	57.7	61 33 19.1	732	+ 1 46.4	112 41 26.7	+ 0.3
38	320 18	6.1	7.0	4.6	8.5	34	610	. .	. .	. .	685	57.7	39 37 43.8	. .	+ 47.8	90 44 52.8	− 6.6
39	320 18	6.1	7.0	4.6	8.5	34	. .	920	. .	935	. .	57.7	39 37 48.1	. .	+ 47.8	90 44 57.1	− 6.6
40	45 6	4.0	5.1	2.5	6.6	26	730	. .	. .	. .	780	57.7	314 47 41.8	. .	− 58.3	5 53 4.7	−19.1
41	45 6	4.0	5.1	2.5	6.6	27	890	. .	. .	. .	970	57.7	314 47 59.7	. .	− 58.3	5 53 22.6	− 1.1
42	318 4	4.0	4.8	1.9	6.4	33	. .	200	. .	190	. .	57.7	41 51 19.2	. .	+ 51.9	92 58 32.3	− 7.1
43	311 24	3.2	2.8	1.5	6.2	33	640	655	. .	. .	. .	57.7	48 31 25.3	. .	+ 1 5.6	99 38 52.1	− 7.7
44	52 24	2.2	4.0	1.7	6.6	37	. .	605	655	630	. .	57.7	307 32 26.6	. .	− 1 15.4	358 37 32.4	+ 0.8
45	310 34	5.0	4.4	2.0	6.6	36	. .	490	. .	465	. .	57.7	49 22 9.8	. .	+ 1 7.6	100 29 38.6	− 1.1
46	71 24	3.6	4.9	2.7	7.0	38	480	. .	. .	. .	675	57.7	288 32 42.0	750	− 2 51.4	339 36 11.8	+ 1.2
47	320 56	1.4	2.1	0.0	4.5	35	960	. .	. .	. .	990	57.6	38 59 59.5	. .	+ 46.5	90 7 7.2	+ 0.1
48	336 20	27.7	28.0	25.3	29.2	36	. .	290	. .	380	. .	57.6	23 36 0.7	. .	+ 25.1	74 42 47.0	+ 0.6
49	316 26	7.0	6.5	3.9	8.4	36	. .	310	. .	340	. .	57.6	43 30 9.3	714	+ 54.6	94 37 25.1	− 6.8

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
8	. .	. .	58.5
11	. .	. .	47.0
22	29.874	69.5	51.5
46	29.926	70.0	45.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
5	− 3.6	+ 5.8	. .	+ 2.2
6	− 3.6	− 5.8	+ 0.6	− 8.8
8	− 4.1	+ 15 56.9	. .	+ 15 52.8
9	− 4.2	− 15 56.9	. .	− 16 1.1
12	−18 42.7	+ 14 59.6	. .	− 3 43.1
30	−27 20.6	+ 15 19.6	. .	− 12 1.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Apr. 20	1	o Virginis . . .	S.	11.5	14.2	15.7	22.0	24.0	26.0	32.3	33.9	36.4	58 24.00	— 0.12	+18.40	+18.36	11 58 42.24	— 0.06
	2	Moon I, N. . .	S.	3.8	6.4	8.0	14.4	16.4	18.5	24.7	26.3	28.9	9 16.38	— 0.14	. .	+18.36	12 9 34.60	+64.41
	3	28 Virginis . . .	S.	51.1	53.7	55.4	1.5	3.6	5.6	11.9	13.3	15.9	35 3.56	— 0.20	. .	+18.36	12 35 21.22	— 1.01
21	4	21 Cassiopeæ, S. P. .	E.	36.5	26.9	21.2	. .	. .	. .	. .	. .	. .	36 51.27	— 0.74	. .	+18.10	0 37 8.63	— 0.19
	5	32^1 Camelopardalis .	E.	. .	. .	19.0	39.5	59.8	19.0	39.4	. .	. .	47 59.34	— 1.35	. .	+18.10	12 48 16.09	— 9.89
	6	32^2 Camelopardalis .	E.	. .	. .	26.7	47.5	7.2	26.8	47.3	. .	. .	48 7.10	— 1.35	. .	+18.10	12 48 23.85	— 2.13
	7	Moon I, N. . .	E.	41.1	43.8	45.2	51.6	53.6	55.7	1.9	3.6	6.2	58 53.63	— 0.12	. .	+18.10	12 59 11.61	+65.16
	8	θ Virginis . . .	E.	. .	. .	. .	2.4	4.5	6.6	10.7	12.2	14.9	3 2.48	— 0.13	+18.16	+18.10	13 3 20.45	— 0.10
	9	Polaris, S. P. . .	E.	. .	. .	39.5	10.0	48.5	19.0	59.0	. .	. .	10 47.20	. .	. .	. .	. . . .	. .
	10	α Virginis . . .	E.	57.8	0.4	2.0	8.1	10.2	12.4	18.7	20.3	23.0	18 10.32	— 0.16	+18.05	+18.10	13 18 28.26	+ 0.03
	11	ζ Virginis . . .	E.	41.0	43.8	45.4	51.5	53.5	55.5	1.5	3.2	5.7	27 53.46	— 0.11	+18.10	+18.10	13 27 11.45	0.00
22	12	Sun I, N. . . .	F.	56.6	59.1	0.9	7.0	9.1	11.2	17.6	19.0	21.7	1 9.13	— 0.17	. .	+18.10	2 1 27.06	. .
	13	Sun II, S. . . .	F.	7.7	10.3	11.7	18.2	20.2	22.2	28.6	30.2	32.6	3 20.19	— 0.17	. .	+18.10	2 3 38.12	. .
	14	ι Aurigæ. . . .	F.	. .	. .	. .	. .	. .	. .	29.9	31.6	34.7	48 20.09	— 0.06	+18.12	+18.10	4 48 38.13	— 0.06
	15	β Orionis. . . .	F.	52.0	54.6	55.9	2.1	4.3	6.3	12.5	14.0	16.6	8 4.26	— 0.27	+18.15	+18.09	5 8 22.08	— 0.06
	16	β Tauri	F.	38.7	41.7	43.6	50.5	52.7	55.0	2.0	3.8	6.5	17 52.72	— 0.09	+18.22	+18.09	5 18 10.72	— 0.15
	17	Anonymous . .	F.	42.7	45.2	46.7	52.9	54.9	57.0	3.0	4.6	7.2	30 54.91	— 0.13	. .	+18.09	10 31 12.87	— 0.56
	18	Anonymous . .	F.	. .	. .	. .	. .	. .	. .	35.1	36.6	39.3	31 26.96	— 0.12	. .	+18.09	10 31 44.93	— 0.56
	19	l Leonis	F.	1.6	4.3	6.0	12.2	14.3	16.4	22.6	24.1	26.7	42 14.24	— 0.05	+18.12	+18.09	10 42 32.28	— 0.03
	20	σ Leonis	F.	2.6	5.2	6.8	12.8	14.8	16.9	23.2	24.6	27.2	14 14.90	— 0.08	. .	+18.09	11 14 32.91	— 0.78
	21	Anonymous . .	F.	6.8	10.0	11.9	19.5	21.8	24.3	32.0	34.0	37.0	19 21.92	— 0.36	. .	+18.09	11 19 39.65	— 0.87
	22	Anonymous . .	F.	. .	. .	29.3	32.2	34.9	37.8	40.8	. .	. .	23 35.00	— 0.43	. .	+18.09	11 23 52.66	— 0.98
	23	β Virginis . . .	F.	32.4	34.9	36.5	42.5	44.5	46.6	52.7	54.3	56.8	43 44.58	— 0.10	. .	+18.09	11 44 2.57	— 0.88
	24	η Virginis . . .	F.	52.2	54.9	56.3	2.5	4.5	6.5	12.7	14.3	16.7	13 4.51	— 0.11	+18.03	+18.09	12 13 22.49	+ 0.04
	25	β Corvi	F.	9.9	12.8	14.4	21.0	23.2	25.4	32.2	33.7	26.4	27 23.22	— 0.25	+18.03	+18.09	12 27 41.06	+ 0.02
	26	21 Cassiopeæ, S. P. .	F.	. .	. .	7.7	0.1	52.7	45.2	37.3	. .	. .	36 52.60	— 1.30	. .	+18.09	0 37 9.39	+ 0.41
	27	32^1 Camelopardalis .	F.	. .	. .	16.2	36.6	56.7	16.9	36.3	. .	. .	47 56.54	+ 3.10	. .	+18.09	12 48 17.73	— 8.18
	28	32^2 Camelopardalis .	F.	. .	. .	24.0	44.0	4.8	23.9	43.6	. .	. .	48 4.06	+ 3.10	. .	+18.09	12 48 25.25	— 0.66
	29	α Canum Venat.. .	F.	29.7	33.0	35.1	43.0	45.5	48.2	56.0	58.0	1.4	49 45.54	+ 0.15	+18.10	+18.09	12 50 3.76	— 0.03
	30	θ Virginis . . .	F.	50.4	52.9	54.5	0.5	2.6	4.6	10.9	12.3	15.0	3 2.63	— 0.14	+18.02	+18.09	13 3 20.58	+ 0.03
	31	Polaris, S. P. . .	F.	. .	. .	44.0	19.0	56.0	29.0	4.0	. .	. .	10 54.40	. .	. .	. .	. . . .	. .
	32	Anonymous . .	F.	34.5	36.9	38.4	44.6	46.5	48.7	54.9	56.4	59.0	15 46.66	— 0.16	. .	+18.09	13 16 4.59	— 1.10
	33	m Virginis . . .	F.	24.7	27.8	28.7	34.9	36.7	39.0	45.3	46.8	49.4	34 37.00	— 0.16	. .	+18.09	13 34 54.93	— 1.12
	34	Moon I, N. . .	F.	0.0	2.5	4.2	10.4	12.5	14.6	21.1	22.6	25.4	50 12.59	— 0.16	. .	+18.09	13 50 30.52	+66.61
	35	θ Bootis	F.	14.0	18.3	20.8	30.7	34.0	37.5	47.5	49.9	54.0	20 34.08	+ 0.32	. .	+18.09	14 20 52.49	— 0.03
	36	Anonymous . .	F.	58.6	0.0	4.0	6.3	8.2	10.4	12.4	16.4	17.9	26 8.24	— 0.14	. .	+18.09	14 26 26.19	— 1.15
	37	ε Bootis	F.	53.4	56.3	58.0	4.7	7.0	9.4	16.5	18.0	21.0	39 7.14	+ 0.06	+18.04	+18.08	14 39 25.28	+ 0.02
	38	α^1 Libræ	F.	7.0	9.8	11.3	15.8	17.8	. .	. .	. .	. .	43 19.86	— 0.20	. .	+18.08	14 43 37.74	. .
	39	α^2 Libræ	F.	18.6	21.2	22.8	29.0	31.0	33.4	39.9	41.4	44.0	43 31.26	— 0.20	+18.10	+18.08	14 43 49.14	— 0.03
23	40	45 Leonis	Ha.	23.2	25.8	27.4	33.6	35.6	37.7	43.9	45.4	48.0	20 35.62	— 0.16	. .	+18.32	10 20 53,78	— 0.54
	41	Anonymous . .	Ha.	9.5	12.0	13.7	19.3	21.7	23.9	30.0	31.6	34.1	31 21.81	— 0.26	. .	+18.32	10 31 39.87	— 0.55
	42	Anonymous . .	Ha	. .	. .	. .	. .	. .	. .	32.4	34.0	36.5	32 24.22	— 0.29	. .	+18.32	10 32 42.25	— 0.55
	43	l Leonis	Ha.	1.7	4.3	5.9	12.0	14.2	16.2	22.5	24.0	26.7	42 14.17	— 0.16	+18.29	+18.33	10 42 32.34	+ 0.04
	44	α Ursæ Majoris . .	Ha.	4.9	10.6	13.9	27.2	31.6	36.0	49.1	52.6	58.0	55 31.54	+ 0.61	. .	+18.33	10 55 50.48	+ 0.04
	45	δ Leonis	Ha.	47.3	50.1	51.7	58.3	0.5	2.8	9.2	10.9	13.6	7 0.49	— 0.07	+18.32	+18.33	11 7 18.75	— 0.05
	46	75 Leonis	Ha.	12.5	15.0	16.8	22.8	24.8	26.9	32.9	34.6	37.0	10 24.81	— 0.23	. .	+18.33	11 10 42.91	— 0.74
	47	82 Leonis	Ha.	34.8	37.7	39.2	45.4	47.3	49.5	55.5	57.0	59.6	18 47.33	— 0.22	. .	+18.33	11 19 5.44	— 0.78
	48	τ Leonis	Ha.	. .	. .	59.9	1.9	4.0	6.0	8.0	. .	. .	21 3.96	— 0.22	+18.32	+18.33	11 21 22.07	— 0.01
	49	e Leonis	Ha.	16.8	19.5	21.0	27.3	29.3	31.3	37.4	38.9	41.5	23 29.22	— 0.26	. .	+18.33	11 23 47.29	— 0.78

2, 4, 26, 27. Bisections at sets B and D.
5, 6, 34. Bisections at set C.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	330 30	28.7	28.5	26.0	1.0	38	. .	300	. .	330	. .	57.6	29 26 32.1	717	+ 32.5	80 33 25.8	+ 0.8
2	324 58	27.6	27.7	25.1	0.4	34	240	. .	430	. .	600	57.6	34 57 31.4	720	+ 40.3	86 4 32.9	
3	314 16	5.2	5.8	4.1	8.0	37	. .	853	. .	871	. .	57.6	45 40 32.2	. .	+ 59.1	96 47 52.5	— 7.4
4	66 44	5.3	6.8	6.0	9.3	39	404	420	. .	. .	. .	56.6	293 12 55.9	. .	— 2 12.3	344 17 4.8	+ 0.5
5	45 6	5.2	6.4	5.5	8.5	26	600	. .	. .	. .	615	56.6	314 47 39.5	. .	— 57.5	5 53 3.2	— 20.0
6	45 6	5.2	6.4	5.5	8.5	27	. .	795	. .	810	. .	56.6	314 47 57.6	. .	— 57.5	5 53 21.3	— 1.9
7	319 2	5.7	5.8	2.9	7.5	36	. .	240	620	000	. .	56.6	40 54 11.9	. .	+ 49.5	92 1 22.6	
8	316 12	7.5	8.0	6.5	9.4	36	. .	. .	362	322	. .	56.6	43 44 10.0	. .	+ 54.6	94 51 25.8	+ 1.2
9	52 24	5.7	7.2	5.3	8.2	37	370	. .	355	. .	390	56.6	307 32 24.3	. .	— 1 14.2	358 37 31.3	+ 0.3
10	310 34	5.2	4.9	3.5	6.5	36	. .	725	. .	695	. .	56.6	49 22 12.8	. .	+ 1 6.5	100 29 40.5	+ 0.8
11	321 6	9.5	9.5	8.3	11.5	33	355	358	. .	375	372	56.6	38 49 26.1	. .	+ 46.0	89 56 33.3	+ 1.0
12	333 46	4.6	5.0	1.2	7.5	32	620	. .	. .	. .	. .	57.8	26 9 10.5	704	+ 28.2	77 15 59.9	
13	333 14	2.5	1.6	29.9	5.7	32	. .	. .	. .	372	370	57.8	26 41 5.5	. .	+ 28.8	77 47 55.5	
14	354 0	1.1	28.7	25.2	1.4	35	. .	. .	. .	760	746	57.8	5 55 53.7	. .	+ 6.0	57 2 20.9	+ 3.6
15	312 42	7.2	3.6	2.9	6.5	35	. .	206	. .	200	. .	57.8	47 13 50.8	. .	+ 1 2.0	98 21 14.0	+ 2.9
16	349 32	5.7	4.3	4.8	7.2	34	. .	354	. .	346	. .	57.8	10 23 38.4	710	+ 10.5	61 30 10.1	+ 1.3
17	317 50	3.0	3.4	3.2	2.7	37	172	166	. .	. .	. .	59.7	42 6 21.1	. .	+ 53.2	93 13 35.5	— 6.0
18	319 54	28.0	28.4	26.7	1.9	38	. .	. .	. .	084	084	59.7	40 2 30.7	. .	+ 49.4	91 9 41.3	— 5.4
19	332 16	3.7	4.4	2.9	5.7	35	. .	184	. .	172	. .	59.7	27 39 51.6	792	+ 30.9	78 46 43.7	+ 1.5
20	327 46	0.4	0.0	29.2	4.4	33	. .	140	. .	146	. .	59.7	32 9 17.2	. .	+ 37.1	83 16 15.5	— 3.8
21	284 54	5.1	4.0	3.0	6.7	36	. .	. .	. .	874	860	59.7	75 2 17.6	. .	+ 3 37.8	126 12 16.6	— 12.4
22																	
23	323 32	5.6	5.4	4.7	8.8	35	080	076	. .	. .	. .	59.7	36 23 52.1	. .	+ 43.7	87 30 57.0	— 5.3
24	321 6	4.3	4.0	3.0	7.0	36	. .	842	. .	836	. .	59.7	38 50 17.5	. .	+ 47.8	89 57 26.5	+ 2.0
25	298 22	0.4	0.4	0.1	4.7	33	. .	. .	. .	150	160	59.7	61 33 17.4	820	+ 1 49.3	112 41 27.9	+ 1.2
26	66 42	29.3	29.9	29.8	5.3	32	200	176	. .	186	186	59.7	293 13 2.3	. .	— 2 17.8	344 17 5.7	+ 1.6
27	45 6	2.6	2.3	2.5	6.6	26	734	730	. .	. .	. .	59.7	314 47 42.2	. .	— 59.9	5 53 3.5	— 19.4
28	45 6	2.6	2.3	2.5	6.6	28	. .	. .	050	. .	. .	59.7	314 48 1.7	. .	— 59.9	5 53 23.0	+ 0.1
29	0 2	0.7	1.7	0.8	4.8	32	. .	. .	. .	180	170	59.7	359 53 3.7	. .	— 0.1	50 59 24.8	+ 1.3
30	316 12	1.6	1.8	1.6	5.3	36	. .	360	. .	368	. .	59.7	43 44 8.2	. .	+ 57.0	94 51 26.4	+ 1.8
31	52 24	2.0	1.2	0.8	5.6	37	625	615	605	605	595	59.7	307 32 27.0	. .	— 1 17.4	358 37 30.8	+ 0.2
32	312 24	7.1	7.5	6.4	10.8	33	. .	516	. .	524	. .	59.7	47 31 29.8	. .	+ 1 5.1	98 38 56.1	— 7.7
33	313 0	2.7	4.0	3.4	6.8	36	. .	000	. .	980	. .	59.7	46 56 4.0	. .	+ 1 3.8	98 3 29.0	— 7.8
34	313 0	29.5	1.1	29.9	3.6	34	000	. .	010	. .	060	59.7	46 55 30.7	. .	+ 1 3.8	98 2 55.7	
35	13 28	28.0	29.4	27.7	0.8	33	. .	. .	. .	610	590	59.7	346 27 22.8	. .	— 14.4	37 33 29.6	+ 0.5
36	316 8	4.2	4.0	4.2	8.2	34	. .	015	. .	045	. .	59.7	43 47 34.9	. .	+ 57.3	94 54 53.4	— 7.7
37	348 40	0.1	29.0	27.9	3.0	38	. .	658	. .	666	. .	59.7	11 16 41.1	842	+ 11.9	62 23 14.2	+ 1.2
38	305 32	0.6	0.7	28.3	4.6	28	. .	820	. .	830	. .	59.7	54 20 11.0	. .	+ 1 23.3	105 27 55.5	
39	305 32	0.6	0.7	28.3	4.6	39	. .	300	. .	. .	. .	59.7	54 22 51.8	844	+ 1 23.4	105 30 36.4	+ 0.2
40	331 28	28.2	27.9	26.0	0.0	27	360	. .	. .	. .	375	59.5	28 28 19.0	763	+ 31.7	79 35 11.9	— 1.7
41	319 44	1.0	0.5	28.2	3.6	34	050	035	. .	. .	. .	59.5	40 11 30.6	. .	+ 49.4	91 18 41.2	— 5.4
42	315 50	26.0	24.5	23.2	28.4	35	. .	. .	. .	600	620	59.5	44 5 49.2	. .	+ 56.6	95 13 7.0	— 6.5
43	332 16	1.3	0.7	28.8	3.4	35	390	. .	. .	. .	410	59.5	27 39 51.8	. .	+ 30.7	78 46 43.7	+ 1.6
44	23 28	28.1	27.9	24.5	29.0	33	. .	805	. .	870	. .	59.5	336 27 25.6	778	— 25.6	27 33 21.2	+ 0.6
45	342 16	2.0	2.0	28.5	4.0	35	. .	385	. .	335	. .	59.5	17 39 51.7	. .	+ 18.7	68 46 31.6	+ 1.4
46	323 46	4.5	4.6	2.2	7.4	36	. .	420	. .	460	. .	59.5	36 10 11.2	. .	+ 42.9	87 17 15.3	— 4.7
47	325 4	28.2	26.9	25.3	0.4	38	900	905	. .	. .	. .	59.5	34 52 42.2	. .	+ 40.9	85 59 44.3	— 4.5
48	324 36	2.0	0.6	29.3	4.0	33	. .	487	. .	. .	. .	59.5	35 19 22.7	. .	+ 41.6	86 26 25.5	+ 0.7
49	318 46	2.5	1.0	29.2	4.9	38	870	. .	. .	. .	900	59.5	41 10 46.0	780	+ 51.3	92 17 58.5	— 6.1

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
12	. .	. .	58.0
25	. .	. .	42.0
37	30.166	69.0	38.8
40	30.136	68.5	49.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
2	−32 24.1	+ 15 31.7	. .	— 16 52.4
7	−37 33.3	+ 15 43.9	. .	— 21 49.4
12	— 3.9	+ 15 57.8	. .	+ 15 53.9
13	— 3.9	— 15 57.8	. .	— 16 1.7
34	−42 26.3	+ 15 55.5	. .	— 26 30.8

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h m. s.	s.
Apr. 23	1	B. A. C. 4006 . .	Ha.	0.3	2.8	4.3	10.4	12.5	14.6	20.7	22.2	24.8	44 12.51	— 0.28	. .	+18.33	11 44 30.56	— 0.88
	2	*o* Virginis . . .	Ha.	11.5	14.2	15.8	22.0	24.1	26.2	32.4	33.9	36.5	58 24.08	— 0.17	+18.36	+18.33	11 58 42.24	— 0.05
	3	4 Draconis . . .	Ha.	. .	. .	35.5	45.7	55.6	6.2	16.4	. .	. .	5 55.88	+ 1.89	. .	+18.33	12 6 16.10	— 0.54
	4	*η* Virginis . . .	Ha.	52.0	54.6	56.1	2.3	4.3	6.4	12.5	14.0	16.5	13 4.30	— 0.25	+18.37	+18.33	12 13 22.38	— 0.06
	5	21 Cassiopeæ, S. P. .	Ha.	. .	. .	8.3	0.4	53.4	45.6	38.4	. .	. .	36 53.22	— 1.81	. .	+18.34	0 37 9.75	— 0.73
	6	50 Virginis . . .	Ha.	33.9	36.6	38.2	44.3	46.5	48 6	54.8	56.2	58.9	2 46.44	— 0.33	. .	+18.34	13 3 4.45	— 1.07
	7	58 Virginis . . .	Ha.	15.4	18.2	19.7	25.9	27.9	29.9	36.0	37.7	40.3	10 27.89	— 0.33	. .	+18.34	13 10 45.90	— 1.09
	8	Polaris, S. P. . .	Ha.	. .	. .	32.0	45.5	39.5	50.0	. .	. .	. .	10 59.38	. .	. .	. .	. . . .	. .
	9	Juno	Ha.	12.0	14.5	15.9	22.0	24.0	26.0	32.3	33.9	36.4	11 24.11	— 0.25	. .	+18.35	14 11 42.21	. .
	10	Moon II, S. . .	Ha.	18.3	21.0	22.6	29.0	31.2	33.4	39.8	41.6	44.0	46 31.21	— 0.37	. .	+18.35	14 46 49.19	—68.68
	11	*β* Bootis	Ha.	34.4	37.9	39.9	48.0	50.7	53.3	1.5	3.6	6.8	56 50.68	+ 0.14	. .	+18.35	14 57 9.17	— 0.01
	12	*α* Andromedæ . .	S.	. .	. .	22.0	24.4	26.8	29.1	31.5	. .	. .	1 26.76	— 0.13	+18.47	+18.36	0 1 44.99	— 0.09
	13	Venus II . . .	S.	49.1	51.6	53.2	59.1	1.2	3.3	9.4	11.0	13.6	49 1.28	+ 0.33	. .	+18.36	0 49 19.31	— 0.37
	14	Polaris	S.	. .	. .	. .	0.5	26.5	53.0	. .	7.0	55.0	10 25.00	+14.36	. .	+18.36	1 10 57.72	— 1.88
24	15	Groombridge 1620	S.	. .	. .	38.0	1.5	24.0	48.0	12.0	. .	. .	10 24.70	+ 4.41	. .	+18.36	10 10 47.47	— 7.63
	16	Groom. 3820, S. P.	S.	. .	. .	. .	10.5	46.0	19.5	. .	. .	. .	23 45.33	— 4.81	. .	+18.36	22 23 58.88	— 5.83
	17	*l* Leonis	S.	. .	. .	10.2	12.2	14.3	16.4	18.5	. .	. .	42 14.32	— 0.28	+18.25	+18.36	10 42 32.40	+ 0.11
	18	*α* Ursæ Majoris, (R)	S.	. .	. .	. .	. .	31.5	36.0	40.4	. .	. .	55 31.54	+ 0.23	. .	+18.36	10 55 50.13	+ 0.28
	19	*e* Leonis	S.	17.0	19.6	21.1	27.2	29.4	31.4	37.5	39.2	41.6	23 29.33	— 0.37	. .	+18.36	11 23 47.32	— 0.78
	20	58 Virginis . . .	S,	. .	. .	24.0	26.0	28.1	30.2	32.3	. .	. .	10 28.12	— 0.43	. .	+18.36	13 10 46.05	— 1.09
	21	Polaris, S. P. . .	S.	26.5	38.0	35.0	46.5	. .	. .	. .	. .	. .	10 54.48	—15.13	. .	+18.36	1 10 57.71	— 2.11
	22	80 Virginis . . .	S.	22.7	25.4	27.0	33.0	35.0	37.3	43.4	44.9	47.5	28 35.13	— 0.39	. .	+18.36	13 28 53.10	— 1.12
	23	*α* Andromedæ . .	E.	. .	. .	22.5	24.8	27.0	29.4	31.6	. .	. .	1 27.06	— 0.20	+18.26	+18.05	0 1 44.91	— 0.19
					15.4	17.0	23.5	25.5	27.5	34.0	35.5	38.0	12 25.49	— 0.27	. .	+18.03	2 12 43.25	. .
25	24	Sun I, N, . . .	E.	13.0														
	25	Sun II, S. . . .	E.	24.2	26.5	28.2	34.6	36.6	38.7	45.0	46.6	49.0	14 36.60	— 0.27	. .	+18.03	2 14 54.36	. .
	26	*α* Persei	E.	. .	. .	48.4	51.4	54.5	57.6	4.0	6.3	10.0	14 51.37	— 0.07	. .	+18.02	3 15 9.32	— 0.07
	27	*α* Tauri	E.	2.7	5.4	7.0	13.4	15.5	17.6	24.0	25.6	28.4	28 15.51	— 0.26	+18.09	+18.01	4 28 33.26	— 0.10
	28	*β* Orionis. . . .	E.	52.0	54.7	56.3	2.4	4.5	6.5	12.8	14.4	17.0	8 4.51	— 0.38	+17.98	+18.01	5 8 22.14	+ 0.03
	29	*β* Tauri	E.	39.0	41.9	43.7	50.7	53.0	55.3	2.3	4.0	7.0	17 52.99	— 0.20	+18.03	+18.01	5 18 10.80	— 0.04
	30	*δ* Orionis. . . .	E.	57.0	59.7	1.2	7.4	9.7	11.5	17.6	19.0	21.7	25 9.37	— 0.34	+18.00	+18.00	5 25 27.03	— 0.03
	31	*ε* Orionis. . . .	E.	12.1	14.8	16.4	22.4	24.5	26.5	32.7	34.2	36.8	29 24.49	— 0.35	+17.96	+18.00	5 29 42.14	+ 0.03
	32	*ρ* Leonis	E.	34.5	37.0	38.6	44.9	47.0	49.0	55.2	57.0	59.5	25 46.97	— 0.22	+17.98	+17.97	10 26 4.72	— 0.08
	33	Anonymous . .	E.	42.9	45.5	47.0	53.3	55.3	57.3	3.4	5.0	7.5	30 55.24	— 0.29	. .	+17.96	10 31 12.91	— 0.52
	34	*l* Leonis	E.	2.0	4.6	6.3	12.5	14.6	16.6	22.9	24.5	27.2	42 14.58	— 0.22	+17.92	+17.96	10 42 32.32	+ 0.04
	35	*ι* Cephei, S. P. .	E.	17.9	11.9	8.3	58.6	53.4	48.3	. .	. .	. .	44 48.47	— 0.66	. .	+17.96	22 45 5.77	+ 0.26
	36	*α* Ursæ Majoris .	E.	. .	. .	23.2	27.8	32.2	36.5	41.0	. .	. .	55 32.14	+ 0.22	. .	+17.96	10 55 49.88	— 0.51
	37	*δ* Leonis	E.	47.8	50.4	52.2	58.7	0.9	3.1	9.6	11.5	14.0	7 0.91	— 0.16	+17.97	+17.96	11 7 18.71	— 0.07
	38	*o* Cephei, S. P. .	E.	. .	. .	13.8	8.0	3.0	57.8	52.2	. .	. .	13 2.96	— 0.70	. .	+17.96	23 13 20.22	+ 0.14
	39	*τ* Leonis	E.	52.0	54.6	56.1	2.4	4.5	6.5	12.7	14.2	16.9	21 4.43	— 0.26	+17.87	+17.96	11 21 22.13	+ 0.07
	40	21 Cassiopeæ, S, P. .	E.	. .	. .	8.4	59.9	52.4	45.2	37.7	. .	. .	36 52.72	— 0.96	. .	+17.95	0 37 9.71	+ 0.50
	41	32[1] Camelopardalis .	E.	. .	. .	16.6	38.0	58.0	19.0	38.0	. .	. .	47 57.92	+ 2.63	. .	+17.95	12 48 18.50	— 7.98
	42	32[2] Camelopardalis .	E.	. .	. .	23.2	46.2	6.0	26.6	47.7	. .	. .	48 5.94	+ 2.63	. .	+17.95	12 48 26.52	+ 0.04
	43	*θ* Virginis . . .	E.	50.7	53.3	54.9	0.9	2.9	5.0	11.2	12.9	15.4	3 3.02	— 0.30	+17.80	+17.94	13 3 20.66	+ 0.10
	44	Polaris, S. P. . .	E.	. .	. .	42.0	18.0	50.5	25.0	0.0	. .	. .	10 51.10	. .	. .	. .	. . . .	. .
	45	*i* Virginis . . .	E.	28.5	31.2	32.7	39.0	41.0	43.0	49.5	51.0	53.7	19 41.07	— 0.34	. .	+17.94	13 19 58.67	— 1.11
	46	*l*[2] Virginis . . .	E.	. .	. .	58.2	0.3	2.3	4.3	6.5	. .	. .	25 2.32	— 0.31	. .	+17.94	13 25 19.95	— 1.12
	47	*ζ* Virginis . . .	E.	41.5	44.2	45.6	51.8	53.9	55.9	2.0	3.7	6.1	27 53.86	— 0.28	+17.89	+17.94	13 28 11.52	+ 0.05
	48	*η* Bootis	E.	5.8	8.6	10.3	16.8	18.9	21.0	27.6	29.4	32.0	48 18.93	— 0.18	+17.94	+17.94	13 48 36.69	— 0.05
	49	*η* Herculis . . .	E.	58.2	1.5	3.5	11.4	14.0	16.8	24.5	26.6	29.9	38 14.04	— 0.05	+17.93	+17.92	16 38 31.91	0.00
	50	Moon S. . . .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .

3. Bisections at wires II and III.
5. Bisections at wires V and VI.
8. Bisections at wires B_2, B_3, and C_1.
15. Bisections at set C.
33. Telescope micrometer reading increased two revolutions in reduction.
35. Wire A used.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETERS. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellanu's Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	316 26	4.0	3.0	0.8	6.0	36	315	. .	. .	. .	335	59.5	43 30 8.2	. .	+ 55.7	94 37 25.1	— 6.8
2	330 30	25.5	24.9	22.9	27.5	38	. .	390	. .	370	. .	59.5	29 26 31.6	. .	+ 33.2	80 33 26.0	+ 1.2
3	39 22	28.9	28.7	26.5	2.6	38	. .	490	540	. .	. .	59.5	320 34 38.7	. .	— 48.3	11 40 11.6	— 0.4
4	321 6	0.5	0.7	28.4	3.6	37	020	070	. .	070	060	59.5	38 50 16.8	787	+ 47.3	89 57 25.3	+ 0.9
5	66 42	27.6	27.8	26.6	1.5	32	. .	. .	255	320	. .	59.5	293 13 0.4	788	— 2 16.4	344 17 5.2	+ 1.3
6	311 24	1.1	0.3	28.3	3.9	33	. .	730	. .	730	. .	59.5	48 31 25.8	. .	+ 1 6.5	99 38 53.5	— 7.8
7	311 10	26.2	25.4	23.9	29.9	32	075	085	. .	. .	. .	59.5	48 44 55.9	. .	+ 1 7.0	99 52 24.1	— 7.8
8	52 24	1.8	3.0	0.7	6.5	37	655	575	550	. .	. .	59.5	307 32 25.0	788	— 1 16.4	358 37 29.8	— 0.6
9	320 58	26.6	26.0	25.0	29.0	36	. .	475	. .	445	. .	59.5	38 58 3.5	. .	+ 47.6	90 5 12.3	— 2.4
10	306 42	28.7	27.6	26.5	1.7	34	070	220	710	000	205	59.5	53 13 37.4	. .	+ 1 18.7	104 21 17.3	
11	1 56	3.0	3.1	1.6	6.3	35	. .	870	. .	860	. .	59.5	358 0 1.4	795	— 2.1	49 6 20.5	+ 0.1
12	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . . .	689			
13																	
14																	
15	45 56	0.5	2.0	29.4	3.1	37	360	. .	320	. .	. .	58.2	314 0 20.4	. .	— 58.8	5 5 42.8	+18.7
16																	
17	332 16	27.9	28.1	25.3	29.5	35	. .	. .	. .	860	820	58.2	27 39 53.8	675	+ 29.8	78 46 44.8	+ 2.8
18																	
19	318 46	2.2	1.8	0.4	3.3	39	. .	. .	. .	. .	040	58.2	41 10 47.0	. .	+ 49.9	92 17 58.1	— 6.1
20																	
21	52 24	2.3	3.2	0.8	5.0	37	678	600	570	. .	. .	58.2	307 32 26.0	710	— 1 14.6	358 37 32.6	+ 2.6
22	316 18	0.5	0.3	28.9	2.5	33	. .	. .	. .	963	961	58.2	43 37 27.6	. .	+ 54.7	94 44 43.5	— 7.5
23																	
24	334 46	1.1	1.0	2.2	2.2	37	504	485	. .	. .	. .	49.4	25 10 14.2	533	+ 25.7	76 17 1.1	
25	334 14	1.0	0.9	2.2	2.2	36	. .	. .	. .	725	675	49.4	25 42 2.6	. .	+ 26.4	76 48 50.2	
26	10 26	2.6	4.2	4.8	5.3	34	. .	. .	. .	935	920	49.4	349 29 38.0	. .	— 10.1	40 35 49.1	+ 0.5
27	337 18	8.5	9.0	7.7	10.6	37	. .	415	. .	395	. .	49.4	22 38 20.4	500	+ 22.7	73 45 4.3	+ 2.8
28	312 42	4.3	5.3	2.7	5.6	35	. .	850	. .	865	. .	49.4	47 13 52.0	. .	+ 58.7	98 21 11.9	+ 1.2
29	349 32	1.8	3.4	2.2	4.5	35	. .	062	. .	082	. .	49.4	10 23 38.6	. .	+ 10.0	61 30 9.8	+ 1.0
30	320 40	26.5	28.0	25.8	28.8	39	. .	760	. .	750	. .	49.4	39 16 44.8	. .	+ 44.6	90 23 50.6	+ 0.9
31	319 46	7.2	9.0	7.5	9.5	36	. .	612	. .	648	. .	49.4	40 10 7.8	518	+ 46.0	91 17 15.0	+ 2.3
32	331 0	8.7	8.5	7.5	8.8	33	. .	510	. .	550	. .	50.1	28 55 21.0	. .	+ 31.1	80 2 13.3	+ 4.0
33	317 50	4.0	2.9	0.8	3.5	36	. .	032	. .	048	. .	50.1	42 6 24.6	. .	+ 50.9	93 13 36.7	— 5.9
34	332 16	9.0	8.9	8.7	9.8	35	. .	508	. .	516	. .	50.1	27 39 52.1	. .	+ 29.6	78 46 42.9	+ 0.9
35	75 22	8.0	7.8	4.8	7.0	24	890	970	. .	. .	. .	50.1	284 28 32.6	. .	— 3 33.8	335 31 20.0	+ 0.3
36	23 28	12.5	12.2	9.2	9.8	33	. .	395	. .	395	. .	50.1	336 27 22.0	. .	— 24.6	27 33 13.6	— 2.3
37	342 16	15.3	15.5	10.9	12.9	35	. .	220	. .	195	. .	50.1	17 39 52.1	. .	+ 18.0	68 46 31.3	+ 1.3
38	73 34	11.0	10.3	8.0	10.7	32	. .	695	. .	810	. .	50.1	286 21 9.8	. .	— 3 9.9	337 24 21.1	— 1.3
39	324 36	9.0	8.2	5.8	7.2	33	. .	832	. .	822	. .	50.1	35 19 24.6	622	+ 40.0	86 26 25.8	+ 1.1
40	66 42	6.0	6.5	4.6	6.5	31	. .	900	. .	910	. .	50.1	293 12 52.3	. .	— 2 11.6	344 17 1.9	— 1.5
41	45 6	7.4	7.2	5.8	7.8	26	. .	760	. .	740	. .	50.1	314 47 39.0	. .	— 57.1	5 53 3.1	—19.0
42	45 6	7.4	7.2	5.8	7.8	28	. .	055	. .	030	. .	50.1	314 47 58.8	. .	— 57.1	5 53 22.9	+ 0.8
43	316 12	13.0	12.5	9.5	11.7	36	. .	520	. .	530	. .	50.1	43 44 10.2	. .	+ 54.3	94 51 25.7	+ 1.1
44	52 24	12.5	12.3	9.0	12.0	37	300	. .	330	. .	310	50.1	307 32 21.8	. .	— 1 13.8	358 37 29.2	— 0.6
45	309 2	7.3	5.7	4.0	6.3	40	. .	458	. .	530	. .	50.1	50 55 5.3	. .	+ 1 9.8	102 2 36.3	— 8.0
46	315 28	10.8	10.0	7.5	11.2	37	. .	930	. .	950	. .	50.1	44 28 30.1	. .	+ 55.8	95 35 47.1	— 7.5
47	321 6	11.8	10.4	7.0	11.0	33	. .	785	. .	810	. .	50.1	38 49 26.7	. .	+ 45.7	89 56 33.6	+ 1.4
48	340 6	11.1	10.2	6.9	9.7	39	. .	805	. .	825	. .	50.1	19 50 58.7	. .	+ 20.5	70 57 40.4	+ 0.8
49	0 12	8.5	7.5	3.7	5.5	35	. .	595	. .	580	. .	50.1	359 43 50.7	. .	— 0.3	50 50 11.6	+ 0.3
50	297 36	12.9	12.5	9.2	12.2	30	. .	220	520	720	. .	50.1	62 18 37.5	. .	+ 1 48.8	113 26 47.5	

No.	Barom.	Att. Ther.	Ex. Ther.
	in.	″	″
11	30.130	70.5	44.0
12	30.104	67.0	65.0
17	30.060	71.0	60.0
25	. .	.	84.5
27	. .	. .	87.0
31	. .	. .	85.0
39	30.036	74.8	65.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
10	−47 1.8	— 16 5.2	. .	−1 3 7.0
24	— 3.7	+ 15 54.5	. .	+ 15 50.8
25	— 3.8	— 15 54.5	. .	— 15 58.3
50	−52 39.3	— 16 6.6	. .	−1 8 55.9

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Apr. 25	1	κ Ophiuchi	E.	7.5	10.2	11.7	17.8	19.9	22.0	28.4	29.9	32.5	51 19.99	— 0.22	+17.84	+17.91	16 51 37.68	+ 0.09
	2	Polaris	F.	..	..	..	..	..	57.0	22.0	..	..	10 31.65	. .	. .	. .	. . . .	. .
29	3	ρ Leonis	E.	35.2	37.8	39.4	45.6	47.7	49.8	56.0	57.6	0.2	25 47.70	— 0.17	+17.15	+17.24	10 26 4.77	+ 0.02
	4	Anonymous	E.	10.5	13.2	14.7	20.9	22.9	24.9	31.0	32.6	35.2	31 22.88	— 0.24	. .	+17.24	10 31 39.88	— 0.49
	5	Anonymous	E.	12.9	15.6	17.1	23.1	25.1	27.2	33.4	35.0	37.5	32 25.21	— 0.26	. .	+17.24	10 32 42.19	— 0.48
	6	l Leonis	E.	..	..	10.9	13.0	15.1	17.3	19.4	..	..	42 15.14	— 0.16	−17.26	+17.24	10 42 32.22	— 0.02
	7	ι Cephei, S. P.	E.	18.8	12.6	8.9	59.5	..	..	..	..	..	44 49.30	— 0.80	. .	+17.24	22 45 5.74	+ 0.03
	8	δ Leonis	E.	48.3	51.1	52.8	59.3	..	3.8	10.3	11.9	14.6	7 1.51	— 0.10	+17.27	+17.24	11 7 18.65	— 0.09
	9	o Cephei, S. P.	E.	..	..	14.4	9.0	3.8	58.5	52.8	..	..	13 3.70	— 0.85	. .	+17.24	23 13 20.09	— 0.20
	10	Anonymous	E.	5.6	8.9	10.6	18.2	21.0	23.7	31.5	33.6	36.7	17 21.09	— 0.52	. .	+17.24	11 17 37.81	— 0.82
	11	Anonymous	E.	56.8	0.1	2.0	9.9	12.6	15.1	22.9	24.6	28.0	23 12.44	— 0.52	. .	+17.24	11 23 29.16	— 0.87
	12	υ Leonis	E.	55.1	57.8	59.3	5.5	7.5	9.5	15.5	17.1	19.7	30 7.44	— 0.23	+17.27	+17.24	11 30 24.45	— 0.07
	13	XII, 1	E.	46.5	49.5	51.2	58.0	0.3	2.5	9.5	11.2	14.2	4 0.32	— 0.42	. .	+17.24	12 5 17.14	— 0.94
	14	XII, 3	E.	43.9	46.7	48.6	55.2	57.5	59.9	6.5	8.4	11.0	9 57.52	— 0.41	. .	+17.24	12 10 14.35	— 0.95
	15	η Virginis	E.	53.0	55.6	57.2	3.4	5.4	7.5	13.6	15.2	17.7	13 5.40	— 0.23	+17.22	+17.24	12 13 22.41	0.00
	16	XII, 5	E.	14.2	17.0	18.8	25.6	28.0	30.4	37.3	39.0	42.0	20 28.03	— 0.42	. .	+17.24	12 20 44.85	— 0.99
	17	XII, 6	E.	6.4	11.0	15.4	17.6	19.7	21.8	24.0	28.5	33.1	23 19.72	— 0.38	. .	+17.24	12 23 36.58	— 0.97
	18	XII, 7	E.	25.7	28.6	30.4	37.1	39.4	41.6	48.6	50.4	53.2	30 39.44	— 0.41	. .	+17.24	12 30 56.27	— 1.04
	19	XII, 9	E.	26.9	30.0	31.9	38.8	41.3	43.7	50.6	52.5	55.4	35 41.23	— 0.44	. .	+17.24	12 35 58.03	— 1.08
	20	XII, 13	E.	50.3	53.0	54.7	1.6	3.8	5.9	12.9	14.6	17.4	43 3.80	— 0.40	. .	+17.23	12 43 20.63	— 1.07
	21	XII, 16	E.	28.2	31.4	33.2	40.7	43.1	45.5	53.0	54.9	58.0	44 43.11	— 0.48	. .	+17.23	12 44 59.86	— 1.15
	22	XII, 17	E.	24.6	28.0	29.8	37.7	40.2	42.9	50.7	52.4	55.8	50 40.23	— 0.52	. .	+17.23	12 50 56.94	— 1.23
	23	θ Virginis	E.	51.3	53.9	55.5	1.4	3.5	5.5	11.8	13.4	15.9	3 3.58	— 0.26	+17.20	+17.23	13 3 20.55	— 0.01
	24	Polaris, S. P.	E.	..	..	47.5	24.0	57.0	30.0	2.0	..	..	10 56.10	. .	. .	. .	. . . .	. .
	25	α Virginis	E.	58.8	1.3	3.0	9.0	11.2	13.3	19.5	21.0	23.7	18 11.20	— 0.30	+17.34	+17.23	13 18 28.13	— 0.13
	26	α^2 Capricorni	E.	27.7	30.4	32.0	38.1	40.3	42.4	48.7	50.2	52.8	10 40.29	— 0.23	+17.12	+17.22	20 10 57.28	+ 0.06
	27	α Cygni	E.	29.1	32.7	34.8	43.4	46.3	49.2	57.9	0.0	3.6	36 46.33	+ 0.22	. .	+17.21	20 37 3.76	— 0.30
	28	Moon II, N.	E.	43.4	45.0	49.6	51.9	54.1	56.4	58.8	3.3	5.0	4 54.17	— 0.30	. .	+17.21	21 5 11.11	−72.24
	29	β Aquarii	E.	19.6	22.2	23.9	30.0	32.0	34.0	40.2	41.8	44.3	24 32.00	— 0.19	+17.14	+17.21	21 24 49.02	+ 0.10
	30	ε Pegasi	E.	23.9	26.6	28.1	34.3	36.5	38.5	44.7	46.3	48.8	37 36.41	— 0.08	+17.30	+17.21	21 37 53.54	— 0.08
	31	γ Pegasi	F.	..	..	..	..	..	..	28.9	30.3	33.0	6 20.36	— 0.19	+17.50	+17.41	0 6 37.58	— 0.09
	32	β Ceti	F.	..	..	..	..	..	..	0.3	1.9	4.6	36 51.68	— 0.45	+17.45	+17.41	0 37 8.64	+ 0.01
	33	Polaris	F.	..	..	..	9.0	32.0	..	22.0	..	..	10 32.50	+14.46	. .	+17.41	1 11 4.37	+ 2.50
	34	Venus II, N.	F.	0.3	2.7	4.3	10.5	12.6	14.6	20.6	22.3	24.8	16 12.52	— 0.25	. .	+17.41	1 16 29.68	— 0.37
	35	Venus, S.	F.	..	..	..	..	..	..	..	..	..	. . .	. .	. .	. .	. . . .	. .
30	36	Sun I, N.	F.	10.3	13.0	14.6	21.0	23.0	25.3	31.7	33.2	35.7	31 23.09	— 0.18	. .	+17.41	2 31 40.32	. .
	37	Sun II, S.	F.	22.4	25.1	26.8	33.0	35.1	37.2	43.6	45.2	47.8	33 35.13	— 0.18	. .	+17.41	2 33 52.36	. .
	38	α Tauri	F.	..	..	..	..	18.2	20.4	24.6	26.2	29.0	28 16.12	— 0.18	+17.38	+17.41	4 28 33.35	+ 0.01
	39	Anonymous	F.	12.8	15.3	17.0	22.9	25.0	27.1	33.4	34.8	37.5	32 25.09	— 0.31	. .	+17.41	10 32 52.19	— 0.47
	40	l Leonis	F.	2.4	5.0	6.7	13.0	15.0	17.1	23.4	24.9	27.5	42 15.00	— 0.18	+17.41	+17.41	10 42 32.23	0.00
	41	α Ursæ Majoris	F.	5.7	11.2	14.7	27.9	32.3	36.6	50.0	53.2	58.6	55 32.24	— 0.49	. .	+17.41	10 55 50.14	— 0.10
	42	δ Leonis	F.	48.3	51.2	52.7	59.2	1.4	3.6	10.2	11.8	14.5	7 1.43	— 0.10	+17.34	+17.41	11 7 18.74	+ 0.01
	43	δ Crateris	F.	27.7	30.4	31.9	38.1	40.3	42.5	48.6	50.5	52.7	12 40.30	— 0.38	+17.39	+17.41	11 12 57.23	0.00
	44	Anonymous	F.	51.0	53.7	55.2	1.5	3.6	5.7	11.8	13.4	16.2	35 3.57	— 0.19	. .	+17.41	11 35 20.79	— 0.83
	45	XII, 1	F.	46.5	49.3	51.0	58.0	0.2	2.7	9.5	11.3	14.0	4 0.28	— 0.49	. .	+17.41	12 5 17.20	— 0.93
	46	XII, 2	F.	25.2	28.4	30.2	37.3	39.5	42.0	49.0	50.8	53.7	8 39.57	— 0.53	. .	+17.41	12 8 56.45	— 0.97
	47	XII, 3	F.	43.8	46.8	48.5	55.0	57.4	59.9	6.6	8.3	11.2	9 57.50	— 0.48	. .	+17.41	12 10 14.43	— 0.95
	48	XII, 4	F.	35.7	38.7	40.3	47.4	49.7	52.1	59.2	1.0	4.0	16 49.79	— 0.52	. .	+17.41	12 17 6.68	— 1.00
	49	XII, 5	F.	14.2	16.8	18.7	25.6	27.9	30.3	37.1	38.9	42.0	20 27.94	— 0.50	. .	+17.41	12 20 44.85	— 1.00

13. Stars indicated by hour and number alone refer to a list intended to be used as zero points in the revision of the Washington Zones 1846 to 1849.

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Number.	Circle Division.	MICROSCOPE MICROMS. I.	II.	III.	IV.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							°	° ′ ″		′ ″	° ′ ″	″
1	330 38	9.8	9.6	7.0	9.7	33	. .	775	. .	785	. .	50.1	29 18 42.3	685	+ 32.2	80 25 35.7	− 0.4
2																	
3	331 0	1.0	1.8	29.5	2.0	33	. .	675	. .	705	. .	52.1	28 55 18.1	. .	+ 32.0	80 2 11.3	+ 2.2
4	319 44	11.2	11.7	9.5	12.6	33	. .	926	. .	918	. .	52.1	40 11 31.8	. .	+ 48.9	91 18 41.9	− 5.2
5	315 50	4.5	4.3	1.5	5.0	35	. .	582	. .	588	. .	52.1	44 5 49.9	. .	+ 56.1	95 13 7.2	− 6.4
6	332 16	6.8	7.8	3.5	6.8	35	. .	555	. .	575	. .	52.1	27 39 52.0	. .	+ 30.4	78 46 43.6	+ 1.8
7	75 26	7.4	7.5	4.0	9.2	30	792	840	. .	. .	. .	52.1	284 28 38.7	. .	− 3 40.8	335 31 19.1	− 0.2
8	342 16	10.6	11.2	8.0	10.8	35	. .	180	. .	236	. .	52.1	17 39 50.5	. .	+ 18.5	68 46 30.2	− 0.6
9	73 34	6.8	7.0	3.9	7.8	33	. .	340	. .	285	. .	52.1	286 21 16.7	728	− 3 15.3	337 24 22.6	+ 0.7
10	283 20	6.2	6.2	1.8	6.3	39	. .	000	. .	150	. .	52.1	76 36 44.6	. .	+ 3 59.2	127 47 5.0	−13.5
11	283 22	11.5	10.3	7.3	11.3	39	. .	760	. .	770	. .	52.1	76 35 0.2	. .	+ 3 58.9	127 45 20.3	−13.4
12	320 56	5.3	5.8	3.2	6.0	36	. .	138	. .	152	. .	52.1	38 59 59.7	. .	+ 47.1	90 7 8.0	+ 1.2
13	293 44	9.9	9.9	5.7	10.9	39	. .	525	. .	465	. .	52.1	66 12 55.1	. .	+ 2 11.4	117 21 27.7	−11.1
14	295 12	9.0	8.1	4.5	8.7	39	. .	590	. .	648	. .	52.1	64 44 55.5	. .	+ 2 3.0	115 53 19.7	−10.6
15	321 6	10.5	10.6	5.8	12.0	36	. .	942	. .	978	. .	52.1	38 50 16.9	. .	+ 46.9	89 57 25.0	+ 0.8
16	293 4	8.8	8.0	4.0	9.1	36	. .	010	. .	020	. .	52.1	66 52 0.0	. .	+ 2 15.7	118 0 36.9	−11.0
17	298 4	9.4	9.2	5.5	11.1	33	. .	180	. .	260	. .	52.1	61 51 18.4	. .	+ 1 48.6	112 59 28.2	−10.2
18	294 38	6.5	6.3	2.7	8.0	34	. .	440	. .	470	. .	52.1	65 17 34.4	. .	+ 2 6.3	116 26 1.9	−10.5
19	290 50	7.0	7.6	3.0	7.6	35	. .	920	. .	902	. .	52.1	69 5 57.2	. .	+ 2 31.8	120 14 50.2	−10.8
20	295 56	7.0	7.6	4.0	7.5	37	. .	450	. .	530	. .	52.1	64 0 21.7	. .	+ 1 59.3	115 8 42.2	−10.1
21	286 42	7.7	7.5	3.6	8.6	35	. .	190	. .	112	. .	52.1	73 13 46.0	. .	+ 3 11.5	124 23 18.7	−11.0
22	282 52	11.8	11.2	6.2	11.7	32	. .	585	. .	595	. .	52.1	77 3 10.0	. .	+ 4 9.1	128 13 40.3	−11.0
23	316 12	9.3	10.7	7.0	9.8	36	. .	435	. .	475	. .	52.1	43 44 8.6	760	+ 56.0	94 51 25.8	+ 1.2
24	52 24	7.1	9.3	6.3	8.2	37	665	. .	640	. .	650	52.1	307 32 25.3	. .	− 1 16.0	358 37 30.5	+ 1.6
25	310 34	8.3	9.2	5.5	8.8	36	. .	760	. .	750	. .	52.1	49 22 11.9	. .	+ 1 8.2	100 29 41.3	+ 1.4
26	308 8	5.1	7.5	4.3	12.6	39	. .	130	. .	155	. .	53.0	51 48 49.0	. .	+ 1 14.4	102 56 24.6	− 1.9
27	5 52	1.6	2.9	0.0	5.2	38	. .	802	. .	840	. .	53.0	354 4 39.5	795	− 6.1	45 10 54.6	+ 0.3
28	299 2	0.5	29.0	27.0	3.5	37	215	. .	830	. .	470	53.0	60 54 6.1	. .	+ 1 44.7	112 2 12.0	
29	314 56	5.2	6.7	4.2	9.8	38	. .	895	. .	915	. .	53.0	45 0 44.5	. .	+ 58.4	96 8 4.1	+ 0.5
30	330 20	28.4	27.3	25.0	1.0	36	. .	242	. .	292	. .	53.0	29 35 55.4	785	+ 33.2	80 42 49.8	+ 0.8
31	335 30	9 23.2	23.1	21.5	24.7	33	. .	. .	. .	342	348	51.2	24 25 3.9	. .	+ 26.0	75 31 51.1	+ 1.0
32	302 22	9 21.8	19.7	16.8	22.1	35	. .	. .	. .	530	526	51.2	57 33 34.2	720	+ 1 29.7	108 41 25.1	+ 0.7
33	49 38	7.5	8.0	6.7	10.3	33	. .	148	138	134	. .	51.2	310 17 15.8	710	− 1 7.2	1 22 29.8	− 1.5
34	327 28	2.3	0.7	28.4	3.2	37	486	. .	. .	. .	520	51.2	32 28 15.9	. .	+ 36.3	83 35 13.4	
35	327 28	2.3	0.7	28.4	3.2	38	. .	186	. .	182	. .	51.2	32 28 26.3	. .	+ 36.3	83 35 23.8	
36	336 20	9 19.0	19.7	18.5	23.0	38	408	352	. .	. .	. .	51.2	23 36 18.0	. .	+ 24.5	74 43 3.7	
37	335 38	9 23.3	23.7	22.8	24.8	37	. .	. .	. .	280	260	51.2	24 8 5.2	640	+ 25.2	75 14 51.6	
38	337 18	3.5	2.9	1.2	4.0	37	. .	. .	. .	695	692	51.2	22 38 20.6	642	+ 23.4	73 45 5.2	+ 3.8
39	315 50	2.2	0.7	28.5	3.2	35	. .	. .	. .	794	798	52.1	44 5 50.3	720	+ 55.9	95 13 7.4	− 6.4
40	332 16	8.6	7.3	4.2	8.4	35	. .	535	. .	538	. .	52.1	27 39 52.5	. .	+ 30.3	78 46 44.0	+ 2.3
41	23 28	6.7	5.7	5.3	6.5	33	. .	626	. .	630	. .	52.1	336 27 22.7	. .	− 25.2	27 33 18.7	+ 0.5
42	342 16	1.9	0.6	29.0	1.2	35	. .	910	. .	910	. .	52.1	17 39 51.8	. .	+ 18.4	68 46 31.4	+ 1.9
43	306 58	7.7	5.8	2.9	8.7	34	870	900	. .	. .	. .	52.1	52 57 41.5	. .	+ 1 16.5	104 5 19.2	+ 0.9
44	331 36	8.2	6.8	3.8	7.8	39	. .	542	. .	558	. .	52.1	28 20 53.7	732	+ 31.2	79 27 46.1	− 2.7
45	293 44	5.5	6.1	29.4	6.0	39	825	815	. .	. .	. .	52.1	66 12 55.2	. .	+ 2 10.7	117 21 27.1	−11.2
46	290 6	10.6	8.2	4.6	10.4	35	776	754	. .	. .	. .	52.1	69 49 57.0	. .	+ 2 36.5	120 58 54.7	−11.6
47	295 12	6.7	3.7	0.3	5.6	39	. .	. .	. .	840	830	52.1	64 44 55.1	. .	+ 2 2.3	115 53 18.6	−10.8
48	291 28	7.9	5.7	0.7	7.5	39	. .	632	. .	630	. .	52.1	68 28 53.5	. .	+ 2 26.0	119 37 40.7	−11.4
49	293 4	9.8	8.0	4.0	10.0	36	. .	050	. .	050	. .	52.1	66 52 1.0	. .	+ 2 14.9	118 0 37.1	−11.0

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	. .	. .	57.0
9	. .	. .	55.0
23	30.288	68.0	52.0
27	. .	. .	45.0
30	. .	. .	51.0
37	30.295	66.0	74.2
39	30.244	66.0	58.2

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
28	−51 29.9	+ 16 7.6	. .	− 35 22.3
34	− 3.0	+ 5.2	. .	+ 2.2
35	− 3.0	− 5.2	0.0	− 8.2
36	− 3.5	+ 15 53.9	. .	+ 15 50.4
37	− 3.6	− 15 53.9	. .	− 15 57.5

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSITS OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Apr. 30	1	XII, 6	F.	6.6	9.3	10.9	17.5	19.7	21.9	28.6	30.2	33.0	23 19.74	— 0.47	. .	+17.41	12 23 36.70	— 0.98
	2	XII, 8	F.	. .	. .	1.2	3.9	6.1	8.5	10.6	. .	. .	33 6.06	— 0.61	. .	+17.41	12 33 22.86	— 1.14
	3	XII, 10	F.	56.8	59.6	1.4	8.2	10.3	12.4	19.2	21.0	23.7	36 10.29	— 0.55	. .	+17.41	12 36 27.23	— 1.04
	4	50 Virginis	F.	34.9	37.7	39.2	45.6	47.5	49.5	55.7	57.2	0.0	2 47.48	— 0.34	. .	+17.41	13 3 4.55	— 1.08
	5	Polaris, S. P.	F.	. .	. .	54.0	28.5	5.0	39.0	14.0	. .	. .	11 4.10	−15.98	. .	+17.41	1 11 5.53	+ 3.51
	6	ζ Virginis, (R.)	F.	42.5	44.8	46.4	52.6	54.6	56.6	2.8	4.3	6.8	27 54.60	— 0.42	. .	+17.41	13 28 11.59	+ 0.11
	7	η Bootis	F.	6.3	9.2	10.9	17.2	. .	21.6	28.1	29.7	32.3	48 19.41	— 0.12	+17.42	+17.41	13 48 36.70	— 0.06
	8	α Draconis, (R.)	F.	12.1	18.2	21.6	36.4	41.0	45.9	0.7	3.7	9.8	0 41.04	+ 0.15	. .	+17.41	14 0 58.60	— 0.20
	9	α Bootis	F.	20.5	23.2	24.8	31.3	33.5	35.6	42.0	43.8	46.6	9 33.48	— 0.12	+17.38	+17.41	14 9 50.77	+ 0.03
May	10	Polaris	S.	. .	. .	29.	. .	19.	. .	10.	16.	2.	10 30.20	+14.18	. .	+17.27	1 11 2.25	— 0.23
2	11	Sun I, S.	S.	49.2	51.8	53.3	59.7	1.9	4.1	10.3	12.0	14.6	39 1.88	— 0.19	. .	+17.26	2 39 18.95	. .
	12	Sun II, N.	S.	1.3	4.0	5.6	12.0	14.2	16.4	22.7	24.4	26.9	41 14.17	— 0.19	. .	+17.26	2 41 31.24	. .
	13	α Tauri	S.	3.6	6.4	7.9	14.3	16.4	18.6	24.8	26.4	29.0	28 16.38	— 0.34	+17.28	+17.26	4 28 33.30	— 0.04
	14	β Leonis	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. . .	. .	. .	. . . .	. .
	15	o Virginis	S.	12.8	15.5	17.0	23.2	25.2	27.3	33.6	35.2	37.8	58 25.29	— 0.31	+17.24	+17.24	11 58 42.22	— 0.02
	16	η Virginis	S.	53.2	55.9	57.4	3.6	5.6	7.7	13.7	15.4	18.0	13 5.61	— 0.40	+17.17	+17.23	12 13 22.44	+ 0.04
	17	β Corvi	S.	10.8	13.9	15.5	22.2	24.4	26.5	33.1	34.9	37.6	27 24.32	— 0.61	+17.26	+17.23	12 27 40.94	— 0.07
	18	XII, 17	S.	. .	. .	. .	. .	. .	. .	50.3	52.7	55.9	50 40.15	— 0.80	. .	+17.23	12 50 56.58	— 1.24
	19	XIII, 1, (1st *)	S.	26.1	29.3	31.0	. .	. .	. .	50.3	52.2	55.3	1 40.70	— 0.72	. .	+17.23	13 1 57.21	— 1.19
	20	XIII, 1, (2d *)	S.	32.5	35.6	37.5	. .	. .	. .	56.7	58.5	1.4	1 47.03	— 0.72	. .	+17.23	13 2 3.54	— 1.19
	21	Polaris, S. P.	S.	33.0	54.0	43.0	. .	53.5	. .	. .	. .	. .	11 4.22	−18.77	. .	+17.23	1 11 2.68	+ 0.03
	22	XIII, 17	S.	41.8	44.8	46.6	53.7	56.0	58.2	5.5	7.0	10.0	30 55.96	— 0.68	. .	+17.23	13 31 12.51	— 1.24
	23	β Ceti	E.	. .	42.0	43.8	50.2	. .	54.4	0.9	2.6	5.2	37 52.30	— 0.56	+17.00	+16.94	0 37 8.68	— 0.01
	24	Polaris	E.	. .	. .	40.0	2.5	27.0	52.0	16.5	. .	. .	10 27.60	. .	. .	. .	. . . .	. .
	25	Venus II, N.	E.	. .	. .	50.0	52.2	54.2	56.4	58.5	. .	. .	29 54.26	— 0.32	. .	+16.93	1 30 10.87	— 0.36
	26	α Arietis	E.	26.0	28.9	30.6	37.2	39.4	41.7	48.3	50.3	52.7	59 39.46	— 0.18	+16.95	+16.93	1 59 56.21	— 0.01
3	27	Sun I, N.	E.	39.7	42.3	43.9	50.3	52.5	54.5	1.0	2.5	5.1	42 52.42	— 0.24	. .	+16.92	2 43 9.10	. .
	28	Sun II, S.	E.	. .	. .	0.6	2.8	5.0	7.0	9.0	. .	. .	45 4.88	— 0.24	. .	+16.92	2 45 21.56	. .
	29	α Tauri	E.	3.9	6.6	8.2	14.6	16.6	18.8	25.2	26.9	29.5	28 16.70	— 0.24	+16.86	+16.90	4 28 33.36	+ 0.02
	30	α Aurigæ	E.	. .	. .	49.5	52.6	. .	58.3	1.6	. .	. .	6 55.49	+ 0.10	. .	+16.89	5 7 12.48	+ 0.01
	31	β Orionis	E.	. .	. .	1.5	3.7	5.6	7.6	9.8	. .	. .	8 5.64	— 0.46	+16.87	+16.89	5 8 22.07	+ 0.02
	32	β Tauri	E.	40.2	43.0	49.4	51.8	54.0	56.2	58.6	5.2	8.0	18 54.04	— 0.12	+16.85	+16.89	5 18 10.81	+ 0.02
	33	γ Pegasi	F.	8.4	11.1	12.7	19.1	21.1	23.3	29.5	31.2	33.7	6 21.12	— 0.31	+16.95	+16.73	0 6 37.54	— 0.22
	34	Polaris	F.	. .	. .	33.0	58.0	22.5	48.0	14.0	. .	. .	10 23.10	+20.62	. .	+16.72	1 11 0.44	— 2.81
4	35	Sun I, S.	F.	30.7	33.3	34.8	41.3	43.3	45.5	50.7	53.5	56.0	46 43.24	— 0.29	. .	+16.72	2 46 59.66	. .
	36	Sun II, N.	F.	43.2	45.9	47.5	53.8	55.9	58.1	4.5	6.0	8.8	48 55.97	— 0.29	. .	+16.72	2 49 12.40	. .
	37	α Tauri	F.	. .	. .	. .	. .	. .	. .	25.3	26.9	29.7	28 16.84	— 0.29	+16.77	+16.71	4 28 33.26	— 0.08
	38	α Aurigæ	F.	38.1	41.8	43.9	52.5	55.6	58.7	7.4	9.6	13.0	6 55.62	+ 0.10	. .	+16.70	5 7 12.42	— 0.04
	39	δ Orionis	F.	1.2	2.5	6.6	8.7	10.6	12.7	14.9	18.7	20.4	25 10.70	— 0.44	+16.71	+16.70	5 25 26.96	— 0.04
	40	μ Leonis	Ha.	58.6	1.5	3.2	10.0	12.2	14.6	21.4	23.1	26.0	45 12.29	— 0.19	+16.93	+16.68	9 45 28.78	— 0.26
	41	α Leonis	Ha.	. .	12.7	14.8	16.9	18.9	21.0	25.3	26.9	29.4	1 16.88	— 0.02	+16.65	+16.68	10 1 33.54	— 0.01
	42	γ^1 Leonis	Ha.	25.2	28.0	29.7	36.2	38.3	40.6	47.0	48.7	51.4	12 38.34	+ 0.09	+16.73	+16.68	10 12 55.11	— 0.07
	43	ρ Leonis	Ha.	35.5	38.0	39.7	45.8	47.9	50.1	56.3	57.9	0.4	26 47.96	— 0.05	+16.72	+16.68	10 26 4.59	— 0.11
	44	Anonymous	F.	16.2	18.8	20.2	26.5	28.4	30.5	36.7	38.0	40.6	31 28.43	— 0.20	. .	+16.68	10 31 44.91	— 0.43
	45	l Leonis	F.	. .	. .	13.6	15.7	17.8	19.9	24.1	25.7	28.0	42 15.70	— 0.03	+16.52	+16.68	10 42 32.35	+ 0.16
	46	X, 17	F.	30.9	34.4	36.2	43.6	46.4	49.0	56.6	58.3	1.4	47 46.31	— 0.72	. .	+16.68	10 48 2.27	— 0.53
	47	XI, 1	F.	21.2	24.2	25.9	32.7	34.8	37.0	43.9	45.6	48.3	3 34.84	— 0.53	. .	+16.67	11 3 50.98	— 0.62
	48	δ Leonis	F.	48.8	51.6	53.3	59.8	2.0	4.4	10.8	12.3	15.2	7 2.02	+ 0.11	+16.50	+16.67	11 7 18.80	+ 0.11
	49	XI, 2	F.	59.0	2.0	3.7	11.3	13.8	16.2	23.5	25.5	28.5	11 13.72	— 0.69	. .	+16.67	11 11 49.70	— 0.66

18, 19, 20. Wire A used.
38. Bisections at wires B_1 and D_3.

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Number.	Circle Division.	MICROSCOPE MICROMS. I.	II.	III.	IV.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	′ ″
1	298 4	7.2	5.3	0.7	7.0	33	670	666	. .	. .	. .	52.1	61 51 21.5	. .	+ 1 48.0	112 59 30.7	— 10.2
2																	
3																	
4	311 24	6.5	4.5	0.7	6.7	34	. .	036	. .	018	. .	52.1	48 31 26.7	744	+ 1 5.5	99 38 53.4	— 7.9
5	52 24	5.5	4.0	0.9	6.5	37	765	770	765	778	775	52.1	307 32 23.7	746	— 1 15.4	358 37 29.5	+ 0.9
6	218 46	5.7	3.8	1.4	6.1	38	. .	412	. .	408	. .	52.1	141 10 33.7	. .	— 46.7	89 56 34.2	+ 2.2
7	340 6	1.8	1.8	27.6	2.2	40	. .	150	. .	. .	. .	52.1	19 50 57.2	. .	+ 21.0	70 57 39.4	+ 0.5
8																	
9																	
10	49 38	28.3	28.7	25.8	0.9	33	. .	. .	. .	482	. .	56.0	310 17 16.2	602	— 1 6.1	1 22 31.3	— 0.5
11	336 24	3.0	3.5	2.3	2.3	36	. .	892	. .	. .	. .	56.0	23 32 12.7	. .	+ 24.0	74 38 57.9	
12	336 56	2.2	2.2	29.0	3.0	37	. .	. .	. .	876	928	56.0	23 0 27.7	512	+ 23.3	74 7 12.2	
13	337 18	28.0	27.9	24.4	29.0	37	650	670	. .	690	. .	56.0	22 38 19.5	555	+ 23.2	73 45 3.9	+ 2.5
14	336 20	28.7	29.7	25.1	29.0	36	. .	. .	. .	470	410	56.4	23 36 1.7	. .	+ 25.0	74 42 47.9	+ 2.7
15	330 30	29.9	29.7	25.1	29.9	38	. .	. .	. .	420	434	56.4	29 26 32.7	685	+ 32.3	80 33 26.2	+ 2.1
16	321 6	6.5	5.4	0.9	6.4	37	. .	150	. .	140	. .	56.4	38 50 19.1	. .	+ 46.1	89 57 26.4	+ 2.3
17	298 22	2.7	2.1	28.8	3.4	33	. .	710	. .	738	. .	56.4	61 33 23.4	. .	+ 1 45.6	112 41 30.2	+ 2.6
18																	
19	282 52	6.5	6.1	1.4	7.0	42	. .	. .	. .	. .	940	56.4	77 3 13.8	. .	+ 4 6.2	128 13 41.2	— 7.9
20	288 16	6.7	5.0	1.0	6.9	45	. .	. .	. .	. .	881	56.4	71 39 58.7	726	+ 2 52.9	122 49 12.8	— 11.6
21	288 16	6.7	5.0	1.0	6.9	42	. .	990	. .	938	. .	56.4	71 39 13.8	. .	+ 2 52.8	122 48 27.8	— 10.8
22	291 54	6.6	5.1	1.1	5.8	38	. .	359	. .	400	. .	56.4	68 2 37.7	730	+ 2 22.3	119 11 21.2	— 9.7
23	302 22	5.0	1.7	0.3	5.6	34	. .	190	. .	225	. .	55.2	57 33 31.0	730	+ 1 30.4	108 41 22.6	— 1.1
24	49 38	10.2	7.3	4.6	9.3	33	000	. .	010	. .	000	55.2	310 17 17.6	. .	— 1 7.8	1 22 31.0	— 1.0
25	328 52	4.8	3.6	1.8	5.5	38	. .	760	. .	810	. .	55.2	31 4 42.3	. .	+ 34.6	82 11 38.1	
26	343 54	5.8	6.4	3.3	7.7	36	. .	360	. .	328	. .	55.2	16 2 6.3	. .	+ 16.4	67 8 43.9	— 0.3
27	337 14	3.3	0.7	29.3	3.8	39	380	430	. .	. .	. .	55.2	22 42 49.5	675	+ 23.8	73 49 34.5	
28	336 42	1.5	29.4	27.5	2.5	38	. .	. .	. .	645	560	55.2	23 14 36.2	. .	+ 24.4	74 21 21.8	
29	337 18	9.5	9.2	6.5	10.2	36	. .	900	. .	830	. .	55.2	22 38 17.8	. .	+ 23.7	73 45 2.7	+ 1.4
30	6 54	4.1	7.2	3.8	6.9	35	. .	960	. .	040	. .	55.2	353 1 46.0	. .	— 6.9	44 8 0.3	— 1.0
31	312 42	3.8	4.4	1.8	6.0	35	. .	140	. .	178	. .	55.2	47 13 46.5	. .	+ 1 1.4	98 21 9.1	— 0.6
32	349 32	2.7	3.0	1.0	4.0	34	. .	690	. .	610	. .	55.2	10 23 37.6	. .	+ 10.4	61 30 9.2	+ 0.1
33	335 30	9 25.7	25.4	22.7	27.0	32	. .	. .	. .	832	808	56.4	24 35 3.1	762	+ 26.6	75 41 50.9	+ 1.1
34	49 38	9.3	6.0	4.5	10.3	33	040	040	044	036	008	56.4	310 17 18.8	752	— 1 8.3	1 22 31.7	— 0.6
35	336 58	27.2	24.3	20.3	24.8	33	876	920	. .	. .	. .	56.4	22 57 18.4	728	+ 24.4	74 4 4.0	
36	337 30	9 24.6	23.7	21.2	25.7	34	. .	. .	. .	838	868	56.4	22 25 33.3	. .	+ 23.8	73 32 18.3	
37	337 18	9.1	5.7	6.9	9.6	36	. .	. .	. .	914	900	56.4	22 38 18.5	732	+ 24.1	73 45 3.8	+ 2.5
38	6 54	0.7	0.0	25.3	0.8	35	358	. .	. .	. .	368	56.4	353 1 46.2	. .	— 7.0	44 8 0.4	— 1.0
39	320 40	3.5	0.5	27.0	3.2	38	. .	. .	. .	. .	848	56.4	39 16 41.4	720	+ 47.0	90 23 49.6	+ 0.7
40	347 40	23.3	23.8	19.3	23.9	39	920	. .	. .	. .	960	58.0	12 16 51.8	760	+ 12.7	63 23 25.7	+ 2.2
41	333 38	1.5	1.5	27.1	1.5	34	782	. .	. .	. .	808	58.0	26 17 40.3	. .	+ 28.9	77 24 30.4	+ 2.0
42	341 32	2.6	2.7	27.6	2.1	36	087	. .	. .	. .	062	58.0	18 24 0.9	. .	+ 19.5	69 30 41.6	+ 2.2
43	331 0	1.0	1.1	27.5	1.6	33	240	. .	. .	. .	265	58.0	28 55 16.5	773	+ 32.3	80 2 10.0	+ 1.2
44	319 54	1.3	29.6	25.3	1.4	38	. .	204	. .	218	. .	58.0	40 2 31.6	780	+ 49.2	91 9 42.0	— 5.0
45	332 16	7.0	6.0	1.6	6.4	35	. .	176	. .	192	. .	58.0	27 39 51.0	. .	+ 30.8	78 46 43.0	+ 1.6
46	285 20	4.5	2.4	28.6	6.1	39	. .	. .	. .	900	860	58.0	74 37 0.4	. .	+ 3 30.1	125 46 51.7	— 14.2
47	296 10	4.8	3.5	0.6	7.8	38	. .	392	. .	440	. .	58.0	63 46 39.4	. .	+ 1 58.5	114 54 59.1	— 13.8
48	342 16	5.0	4.2	29.8	5.7	35	. .	256	. .	250	. .	58.0	17 39 50.6	. .	+ 18.7	68 46 30.5	+ 1.4
49	287 4	1.5	0.2	26.2	0.7	40	. .	. .	. .	322	322	58.0	72 53 3.9	. .	+ 3 8.5	124 2 33.6	— 14.8

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
9	30.226	65.	55.
23	30.100	68.0	56.5
27	. .	. .	64.0
39	30.186	61.8	59.6
44	30.242	65.5	50.3

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
11	— 3.5	— 15 52.8	. .	— 15 56.3
12	— 3.4	+ 15 52.8	. .	+ 15 49.4
25	— 7.7	+ 5.7	. .	— 2.0
27	— 3.3	+ 15 53.6	. .	+ 15 50.3
28	— 3.4	— 15 53.6	. .	— 15 57.0
35	— 3.4	— 15 52.8	. .	— 15 56.2
36	— 3.3	+ 15 52.8	. .	+ 15 49.5

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
May 4	1	δ Crateris . . .	F.	. .	. .	39.0	. .	43.0	45.3	49.3	51.0	53.5	12 40.96	− 0.37	+16.58	+16.67	11 12 57.26	+ 0.07
	2	Anonymous . .	F.	52.7	55.7	57.7	5.3	7.4	10.3	17.7	19.8	23.2	18 7.76	− 0.73	. .	+16.67	11 18 23.70	− 0.71
	3	Anonymous . .	F.	19.2	23.4	25.5	34.0	36.7	39.4	47.9	50.0	53.8	23 36.66	− 0.91	. .	+16.67	11 23 52.42	− 0.85
	4	Anonymous . .	F.	53.5	56.9	59.1	7.6	10.8	13.5	22.0	24.4	27.7	25 10.61	− 0.91	. .	+16.67	11 25 26.37	− 0.83
	5	Anonymous . .	F.	. .	. .	. .	. .	. .	8.6	12.6	14.3	17.0	35 4.42	− 0.04	. .	+16.67	11 35 21.05	− 0.80
	6	XI, 17	F.	11.1	14.1	15.9	23.0	25.3	27.7	34.8	36.5	39.5	55 25.32	− 0.61	. .	+16.67	11 55 41.38	− 0.60
	7	o Virginis . . .	F.	13.2	16.0	17.5	23.7	25.8	27.8	34.0	35.5	38.0	58 25.72	− 0.06	+16.54	+16.67	11 58 42.33	+ 0.11
	8	XII, 2	F.	26.1	29.0	30.9	38.2	40.5	42.8	49.7	51.7	54.7	8 40.40	− 0.63	. .	+16.67	12 8 56.44	− 0.95
	9	η Virginis . . .	F.	53.8	56.4	58.0	3.9	6.0	8.1	14.2	15.7	18.3	13 6.04	− 0.18	+16.51	+16.67	12 13 22.53	+ 0.14
	10	XII, 4	F.	36.5	39.4	41.0	48.2	50.5	52.9	59.9	1.6	4.5	16 50.50	− 0.61	. .	+16.67	12 17 6.56	− 0.97
	11	XII, 7	F.	26.4	29.5	31.3	38.0	40.1	42.4	49.5	51.4	53.9	30 40.28	− 0.55	. .	+16.67	12 30 56.40	− 1.01
	12	XII, 10	F.	51.4	54.5	56.5	4.0	6.4	8.7	16.6	18.2	21.2	36 6.39	− 0.52	. .	+16.67	12 36 22.54	− 1.02
	13	XII, 14	F.	15.5	18.7	20.6	27.6	30.0	32.5	39.9	41.7	44.8	43 30.14	− 0.67	. .	+16.67	12 43 46.14	− 1.12
	14	Polaris, S. P. . .	F.	. .	. .	2.0	38.0	14.0	51.0	27.0	. .	. .	11 14.40	−30.25	. .	+16.66	1 11 0.81	− 2.67
	15	Anonymous . .	F.	35.9	38.8	40.2	46.1	. .	50.5	56.9	58.3	1.0	16 48.46	− 0.30	. .	+16.66	13 17 4.82	− 1.12
	16	ζ Virginis . . .	F.	43.0	45.6	47.0	53.2	55.2	57.2	3.3	4.9	7.5	27 55.21	− 0.18	+16.46	+16.66	13 28 11.69	+ 0.20
	17	XIII, 22	F.	. .	. .	6.5	8.9	. .	13.9	16.4	. .	. .	34 11.42	− 0.66	. .	+16.66	13 34 27.42	− 1.30
	18	XIII, 23	F.	13.0	16.4	18.5	26.0	28.5	31.0	39.0	40.8	44.1	40 28.59	− 0.76	. .	+16.66	13 40 44.49	− 1.31
	19	η Ursæ Majoris . .	F.	55.9	59.6	1.9	11.4	14.5	17.8	27.4	29.7	33.5	42 14.63	+ 0.28	. .	+16.66	13 42 31.57	− 0.22
	20	95 Virginis . . .	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	21	α Bootis	F.	. .	29.8	32.0	34.2	. .	38.6	42.8	44.5	47.4	9 34.20	+ 0.08	+16.48	+16.66	14 9 50.94	+ 0.18
	22	Elpis	F.	33.5	36.0	37.8	43.9	46.0	48.1	54.0	55.8	58.2	16 45.92	− 0.23	. .	+16.66	14 17 2.35	. .
	23	ε Bootis, (R.) . .	F.	55.2	58.1	59.9	6.7	9.0	11.4	18.0	19.8	22.9	39 9.00	− 0.55	. .	+16.66	14 39 25.11	− 0.25
	24	α^2 Libræ	F.	20.4	23.2	24.6	30.9	33.0	35.0	41.5	43.2	45.8	43 33.07	− 0.39	+16.61	+16.66	14 43 49.34	+ 0.04
	25	Anonymous . .	F.	23.5	26.2	27.6	34.5	36.9	38.9	46.0	47.5	50.0	56 36.79	− 0.48	. .	+16.66	14 56 52.97	− 0.85
	26	Flora	F.	28.3	31.0	32.5	38.6	40.7	42.7	48.7	50.5	53.2	13 40.69	− 0.30	. .	+16.65	15 13 57.04	. .
6	27	θ Virginis . . .	S.	51.9	54.5	56.1	2.2	4.2	6.4	12.5	14.0	16.5	3 4.26	− 0.53	+16.79	+16.77	13 3 20.50	− 0.06
	28	Polaris, S. P. . .	S.	. .	. .	55.0	29.0	3.0	38.0	13.0	. .	. .	11 3.60	−18.25	. .	+16.77	1 11 2.12	− 2.43
	29	α Virginis . . .	S.	59.5	2.0	3.7	9.8	12.0	14.2	20.5	22.0	24.5	18 12.02	− 0.58	+16.80	+16.77	13 18 28.21	− 0.05
	30	75 Virginis . . .	S.	. .	. .	42.3	44.4	46.5	48.6	50.7	. .	. .	25 46.50	− 0.62	. .	+16.76	13 26 2.64	− 1.15
	31	94 Virginis . . .	S.	3.8	6.4	8.0	14.2	16.4	18.4	24.4	26.1	28.8	59 16.28	− 0.56	. .	+16.76	13 59 32.48	− 1.22
	32	κ Virginis . . .	S.	. .	. .	45.0	47.2	49.3	51.4	53.5	. .	. .	5 49.28	− 0.57	. .	+16.76	14 6 5.47	− 1.23
	33	B. A. C. 4722 . .	S.	53.2	56.0	57.7	4.0	6.2	8.3	14.7	16.7	19.3	8 6.23	− 0.65	. .	+16.76	14 8 22.34	− 1.26
	34	ι Cassiopeæ, S. P. .	S.	45.3	38.8	34.7	24.2	. .	. .	. .	. .	. .	18 14.03	− 1.38	. .	+16.76	2 18 29.41	+ 0.15
	35	α^1 Libræ	S.	9.0	11.7	13.4	. .	. .	. .	. .	. .	. .	43 21.81	− 0.63	. .	+16.76	14 43 37.94	. .
	36	α^2 Libræ	S.	. .	. .	29.0	31.1	33.2	35.5	37.7	. .	. .	43 33.30	− 0.63	+16.63	+16.76	14 43 49.43	+ 0.12
	37	B. A. C. 4923[1] . .	S.	. .	. .	39.6	41.8	44.0	46.4	48.7	. .	. .	49 44.10	− 0.68	. .	+16.76	14 50 0.18	− 1.33
	38	B. A. C. 4923[2] . .	S.	. .	. .	40.7	42.9	45.2	47.5	49.7	. .	. .	49 45.20	− 0.68	. .	+16.76	14 50 1.28	− 1.33
	39	ι Libræ	S.	27.9	30.6	32.3	38.7	40.9	43.1	49.7	51.4	54.0	4 40.96	− 0.67	. .	+16.75	15 4 57.04	− 1.34
	40	28 Libræ	S.	10.6	13.4	15.2	21.6	23.7	25.9	32.2	33.8	36.6	13 23.67	− 0.65	. .	+16.75	15 13 39.77	− 1.33
	41	o^2 Libræ	S.	26.1	28.9	34.6	36.7	38.7	41.0	43.0	48.9	51.5	15 38.82	− 0.62	. .	+16.75	15 15 54.95	− 1.31
	42	ζ^3 Libræ	S.	. .	. .	8.3	10.5	12.5	14.7	16.9	. .	. .	23 12.58	− 0.64	. .	+16.75	15 23 28.69	− 1.32
	43	Anonymous . .	S.	34.3	37.2	39.0	45.5	47.6	50.0	56.6	58.3	1.0	31 47.72	− 0.72	. .	+16.75	15 32 3.75	− 1.36
	44	η Libræ	S.	25.0	27.7	29.3	35.7	37.8	39.8	46.3	47.9	50.5	36 37.78	− 0.63	. .	+16.75	15 36 53.90	− 1.31
	45	B. A. C. 5253 . .	S.	47.0	50.0	51.7	58.5	0.6	3.0	9.8	11.3	14.2	46 0.68	− 0.72	. .	+16.75	15 46 16.71	− 1.35
	46	π Scorpii	S.	38.4	41.4	43.0	49.9	52.1	54.4	1.1	2.9	5.9	50 52.12	− 0.74	. .	+16.75	15 51 8.13	− 1.37
	47	β^1 Scorpii	S.	32.1	34.8	36.4	. .	. .	. .	53.8	55.4	58.2	57 45.12	− 0.67	+16.70	+16.74	15 58 1.19	+ 0.07
	48	β^2 Scorpii	S.	. .	. .	41.2	43.4	45.5	47.7	49.9	. .	. .	57 45.54	− 0.67	. .	+16.74	15 58 1.61	. .
	49	ν^1 Scorpii	S.	4.6	7.4	9.0	. .	. .	. .	26.4	28.0	30.7	4 17 68	− 0.67	. .	+16.74	16 4 33.75	− 1.30
	50	ν^2 Scorpii	S.	. .	. .	14.5	16.6	18.8	21.0	23.0	. .	. .	4 18.78	− 0.67	. .	+16.74	16 4 34.85	− 1.30

22, 25, 26. Wire A used.
32, 42. Bisections at sets B and D.
34. Bisections at wires I, II, B_1, and B_3.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		″	° ′ ″	″
1	306 58	29.6	28.0	24.2	2.8	34	. .	. .	. .	946	950	58.0	52 57 40.6	. .	+ 1 17.7	104 5 19.5	+ 1.1
2	284 48	29.1	22.5	27.4	1.7	32	. .	340	. .	340	. .	58.0	75 6 59.5	. .	+ 3 37.5	126 16 58.2	−15.3
3	277 8	5.9	4.8	29.2	7.4	27	. .	370	. .	440	. .	58.0	82 45 50.6	. .	+ 7 14.3	133 59 26.1	−14.9
4	277 8	5.9	4.8	29.2	7.4	38	. .	225	. .	225	. .	58.0	82 48 36.5	790	+ 7 16.8	134 2 14.5	−14.9
5	331 34	6.2	5.0	1.7	7.2	31	. .	. .	. .	398	410	58.0	28 20 52.8	. .	+ 31.7	79 27 45.7	− 2.4
6	291 12	5.5	2.7	0.0	6.5	39	. .	660	. .	670	. .	58.0	68 44 58.1	. .	+ 2 30.2	119 53 49.5	−12.4
7	330 30	9 26.5	24.9	21.8	27.5	38	. .	480	. .	480	. .	58.0	29 26 31.6	796	+ 33.2	80 33 26.0	+ 2.0
8	290 6	4.1	2.5	29.8	7.1	35	. .	. .	. .	590	540	58.0	69 49 54.6	. .	+ 2 39.1	120 58 54.9	−12.1
9	321 6	6.0	4.6	1.4	7.6	36	. .	920	. .	916	. .	58.0	38 50 17.3	. .	+ 47.4	89 57 25.9	+ 1.9
10	291 28	7.0	3.5	0.3	8.7	39	. .	. .	. .	332	342	58.0	68 28 54.1	. .	+ 2 28.5	119 37 43.8	−11.7
11	294 38	6.1	4.0	1.3	9.4	34	. .	110	. .	096	. .	58.0	65 17 34.2	. .	+ 2 7.6	116 26 3.0	−10.9
12	296 48	5.6	3.5	29.7	7.3	31	. .	806	. .	820	. .	58.0	63 6 57.8	. .	+ 1 56.0	114 15 15.0	−10.5
13	287 48	2.1	29.6	26.8	3.3	39	. .	550	. .	556	. .	58.0	72 8 53.1	. .	+ 3 1.6	123 18 15.9	−11.6
14	52 24	6.7	5.0	2.8	9.5	37	390	390	386	376	376	58.0	307 32 25.4	814	− 1 17.0	358 37 29.6	+ 2.0
15	312 24	5.7	3.8	0.0	6.6	34	. .	. .	. .	060	036	58.0	47 31 32.2	. .	+ 1 4.7	98 38 58.1	− 7.8
16	321 6	3.2	1.6	28.1	5.5	33	. .	. .	. .	730	726	58.0	38 49 25.4	. .	+ 47.7	89 56 34.3	+ 2.5
17	288 8	8.3	7.0	2.9	10.8	34	. .	786	. .	776	. .	58.0	71 47 46.6	. .	+ 2 58.5	122 57 6.3	−10.1
18	283 30	3.6	2.0	26.8	4.5	40	. .	300	. .	300	. .	58.0	76 27 5.8	. .	+ 4 1.6	127 37 28.6	− 9.8
19	11 0	2.2	2.0	28.9	4.0	38	. .	610	. .	612	. .	58.0	348 56 40.6	. .	− 11.6	40 2 50.2	+ 1.3
20	312 22	4.6	3.6	0.3	7.7	39	. .	050	. .	040	. .	58.0	47 34 49.1	. .	+ 1 4.9	98 42 15.2	− 7.8
21	340 54	9 21.0	20.4	15.7	23.0	38	. .	. .	. .	390	396	58.0	19 2 25.2	. .	+ 20.5	70 9 6.9	+ 2.0
22	317 16	5.7	3.2	1.0	6.5	38	. .	. .	. .	945	955	58.0	42 38 13.5	. .	+ 54.7	93 45 29.4	− 2.9
23	191 12	9.5	9.1	4.2	11.5	33	. .	058	. .	062	. .	58.0	168 43 21.5	. .	− 11.9	62 23 11.6	+ 1.0
24	305 32	6.4	3.1	0.1	8.4	31	. .	566	. .	570	. .	58.0	54 22 54.6	832	+ 1 23.0	105 30 38.8	+ 2.2
25	299 26	6.7	5.0	1.3	8.9	33	. .	. .	. .	000	030	58.0	60 26 43.5	. .	+ 1 44.7	111 34 49.4	− 2.6
26	312 4	8.6	5.9	4.7	11.1	37	. .	000	. .	000	. .	58.0	47 49 46.6	840	+ 1 5.8	98 57 13.6	− 3.4
27	316 12	. .	1.5	. .	29.1	37	. .	078	. .	108	. .	53.6	43 44 10.2	. .	+ 54.2	94 51 25.6	+ 1.2
28	52 24	29.6	0.2	27.0	28.9	37	780	770	678	720	720	53.6	307 32 19.4	639	− 1 13.8	358 37 26.8	− 0.2
29	310 34	2.2	0.8	26.0	28.7	37	. .	430	. .	450	. .	53.6	49 22 15.5	. .	+ 1 6.2	100 29 42.9	+ 2.9
30	306 22	29.1	27.5	22.2	25.9	39	. .	522	. .	552	. .	53.6	53 34 44.4	651	+ 1 16.8	104 42 22.4	− 8.6
31	312 46	3.4	2.5	27.1	0.5	34	. .	410	. .	550	. .	53.6	47 9 31.4	. .	+ 1 1.6	98 16 54.2	− 7.7
32	311 22	. .	29.0	. .	27.4	33	792	. .	. .	. .	822	53.6	48 33 17.9	. .	+ 1 4.7	99 40 43.8	− 7.8
33	303 26	3.0	1.7	26.9	0.0	30	. .	430	. .	390	. .	53.6	56 28 28.5	. .	+ 1 26.2	107 36 15.9	− 8.4
34	74 10	26.2	26.9	21.8	24.0	38	390	320	312	308	. .	53.6	285 46 23.9	682	− 3 20.0	336 49 25.1	+ 1.6
35																	
36	305 34	2.9	0.6	25.0	29.9	40	. .	. .	. .	140	210	53.6	54 22 57.5	693	+ 1 20.1	105 30 38.8	+ 2.1
37	300 14	2.9	0.4	24.5	29.1	37	. .	. .	. .	. .	225	53.6	59 42 11.7	. .	+ 1 38.1	110 50 11.0	− 7.8
38	300 14	2.9	0.4	24.5	29.1	37	. .	. .	. .	574	. .	53.6	59 42 17.2	. .	+ 1 38.1	110 50 16.5	− 7.8
39	301 46	4.1	2.0	27.3	1.8	38	. .	472	. .	342	. .	53.6	58 10 32.1	698	+ 1 32.4	109 18 25.7	− 7.4
40	303 22	0.4	28.0	23.7	28.1	35	. .	755	. .	785	. .	53.6	56 33 47.9	. .	+ 1 27.0	107 41 36.1	− 7.1
41	306 24	1.7	29.8	24.5	29.4	40	. .	. .	. .	228	206	53.6	53 32 57.4	703	+ 1 17.8	104 40 36.4	− 7.1
42	304 54	1.0	29.1	24.8	29.6	38	. .	. .	. .	293	247	53.6	55 2 27.4	. .	+ 1 22.3	106 10 10.9	− 6.9
43	297 40	25.8	25.0	19.9	25.4	31	. .	. .	. .	970	984	53.6	62 14 45.9	. .	+ 1 49.1	113 22 56.2	− 6.2
44	305 48	28.3	26.8	21.0	27.0	37	. .	382	. .	392	. .	53.6	54 8 11.0	710	+ 1 19.7	105 15 51.9	− 6.5
45	296 56	2.3	0.2	25.4	0.1	39	. .	. .	. .	630	720	53.6	63 0 49.7	. .	+ 1 52.9	114 9 3.8	− 5.5
46	295 20	27.4	25.2	20.0	24.5	37	. .	890	. .	978	. .	53.6	64 36 17.8	715	+ 2 1.1	115 44 40.1	− 5.3
47	301 36	3.8	1.0	26.6	0.6	33	724	. .	. .	. .	832	53.6	58 19 20.1	. .	+ 1 33.4	109 27 14.7	− 1.9
48	301 36	3.8	1.0	26.6	0.6	32	. .	972	. .	002	. .	53.6	58 19 8.1	. .	+ 1 33.3	109 27 2.6	
49	301 56	2.2	0.2	25.5	29.0	32	889	. .	. .	. .	977	53.6	57 59 5.8	717	+ 1 32.2	109 6 59.2	− 5.2
50	301 56	2.2	0.2	25.5	29.0	35	. .	380	. .	410	. .	53.6	57 59 43.8	. .	+ 1 32.2	109 7 37.2	− 5.2

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
26	30.288	65.0	42.5
39	30.154	75.0	58.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
May 6	1	τ Herculis	S.	21.2	24.8	27.0	35.9	39.0	41.9	50.7	53.0	56.7	15 38.91	+ 0.02	. .	+16.74	16 15 55.67	+ 0.33
	2	α Scorpii	S.	5.1	8.0	9.9	16.8	19.0	21.4	28.3	29.8	32.6	21 18.99	— 0.75	+16.86	+16.74	16 21 34.98	— 0.13
	3	ζ Ophiuchi	S.	39.2	43.5	47.6	49.7	51.8	54.0	56.0	0.1	4.2	29 51.79	— 0.58	+16.77	+16.74	16 30 7.95	— 0.03
	4	η Herculis	S.	. .	. .	10.0	12.8	15.4	18.2	20.7	. .	. .	38 15.42	— 0.09	+16.79	+16.74	16 38 32.07	— 0.06
	5	B. A. C. 5652	S.	. .	. .	57.0	59.2	1.5	3.8	6.2	. .	. .	44 1.54	— 0.19	. .	+16.74	16 44 18.09	— 1.36
	6	B. A. C. 5666	S.	9.9	12.8	14.7	21.8	24.1	26.5	33.6	35.5	38.4	45 24.14	— 0.20	. .	+16.74	16 45 40.68	— 1.37
	7	ε Ursæ Minoris, (R.)	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	8	B. A. C. 5842	S.	6.0	9.0	11.0	18.4	20.9	23.2	30.5	32.4	35.5	12 20.77	— 0.16	. .	+16.74	17 12 37.35	— 1.39
	9	B. A. C. 5895	S.	. .	. .	43.3	46.0	48.7	51.2	56.4	58.3	1.5	19 46.09	— 0.11	. .	+16.74	17 20 2.72	— 1.43
	10	β Draconis	S.	57.2	1.5	4.0	14.2	17.5	20.7	30.9	33.2	37.5	27 17.41	+ 0.13	. .	+16.74	17 27 34.28	+ 0.02
	11	O. Arg. N. 17415	S.	22.5	29.5	33.5	. .	. .	. .	18.5	22.2	29.0	36 55.87	+ 0.68	. .	+16.74	17 37 13.29	— 2.84
	12	O. Arg. N. 17420	S.	. .	. .	53.0	58.5	4.2	10.0	15.8	. .	. .	37 4.30	+ 0.68	. .	+16.74	17 37 21.72	— 2.84
	13	B. A. C. 6073	S.	46.4	49.3	51.0	57.9	0.1	2.4	9.3	11.0	13.8	50 0.13	— 0.24	. .	+16.74	17 51 16.63	— 1.18
	14	δ Ursæ Minoris	S.	. .	. .	20.0	55.0	28.9	3.5	38.0	. .	. .	13 29.08	+ 6.72	. .	+16.74	18 13 52.54	— 0.91
	15	B. A. C. 6289	S.	23.6	28.7	31.4	43.3	47.3	51.3	3.0	6.0	10.6	21 47.24	+ 0.29	. .	+16.74	18 22 4.27	— 1.72
	16	1 Aquilæ	S.	47.0	49.5	51.0	57.2	59.3	1.4	7.6	9.0	11.8	27 59.31	— 0.56	+16.64	+16.74	18 28 15.49	+ 0.17
	17	α Lyræ	S.	4.9	8.3	10.2	18.0	20.8	23.4	31.2	33.2	36.4	32 20.71	— 0.09	+16.77	+16.74	18 32 37.36	— 0.01
	18	51 Cephei, S. P.	S.	. .	. .	49.5	4.0	20.0	37.0	54.5	. .	. .	39 21.00	— 9.28	. .	+16.73	6 39 28.45	+ 1.73
	19	Polaris	E.	. .	. .	38.0	5.5	30.0	57.0	22.0	. .	. .	10 30.50	+13.48	. .	+16.46	1 11 0.44	— 4.41
	20	Venus II, N.	E.	. .	. .	. .	. .	19.9	22.0	26.0	27.7	30.3	48 17.81	— 0.42	. .	+16.46	1 48 33.85	— 0.36
7	21	Sun I, S.	E.	6.4	9.2	10.7	17.0	19.1	21.2	27.8	29.4	32.0	58 19.20	— 0.36	. .	+16.45	2 58 35.29	. .
	22	Sun II, N.	E.	19.5	22.2	23.8	30.2	32.3	34.4	40.9	42.5	45.2	0 32.33	— 0.36	. .	+16.45	3 0 48.42	. .
	23	α Tauri	E.	4.2	7.0	8.6	14.9	17.1	19.3	25.6	27.3	30.0	28 17.11	— 0.36	+16.56	+16.44	4 28 33.19	— 0.14
	24	β Orionis	E.	53.8	56.2	57.9	3.9	6.1	8.2	14.5	16.0	18.5	8 6.12	— 0.57	+16.49	+16.44	5 8 21.99	— 0.05
	25	β Tauri	E.	43.5	45.2	49.8	52.2	54.5	56.8	59.1	3.7	5.5	17 54.48	— 0.26	+16.53	+16.44	5 18 10.66	— 0.11
	26	δ Orionis	E.	. .	. .	. .	10.9	13.0	15.0	19.0	20.8	23.3	25 10.96	— 0.50	+16.49	+16.43	5 25 26.89	— 0.09
	27	ε Orionis	E.	13.8	16.4	17.9	24.0	26.0	28.0	34.3	35.8	38.3	29 26.06	— 0.50	+16.46	+16.43	5 29 41.99	— 0.04
	28	α Orionis	E.	45.0	47.6	49.2	55.4	57.4	59.5	5.7	7.3	10.0	47 57.46	— 0.44	+16.45	+16.43	5 48 13.45	— 0.05
	29	δ Leonis	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	30	δ Crateris	E.	28.7	31.4	33.0	39.3	41.4	43.5	49.8	51.4	54.0	12 41.39	— 0.56	+16.31	+16.40	11 12 57.23	+ 0.07
	31	Anonymous	E.	53.0	56.0	58.0	. .	. .	. .	18.2	20.3	23.5	18 8.17	— 0.84	. .	+16.40	11 18 23.73	— 1.21
	32	υ Leonis	E.	56.2	58.8	0.5	6.5	8.6	10.7	16.8	18.3	20.9	30 8.59	— 0.43	+16.26	+16.39	11 30 24.55	+ 0.09
	33	β Leonis	E.	3.8	6.5	8.0	14.5	16.5	18.7	24.9	26.6	29.3	42 16.53	— 0.29	+16.34	+16.39	11 42 32.63	+ 0.03
	34	η Virginis	E.	54.2	56.9	58.3	4.3	6.4	8.6	14.6	16.2	18.7	13 6.47	— 0.43	+16.32	+16.39	12 13 22.43	+ 0.05
	35	Polaris, S. P.	E.	. .	. .	50.0	25.0	0.5	36.5	12.5	. .	. .	11 0.90	—16.39	. .	+16.38	1 11 0.89	— 4.27
	36	Polaris	F.	. .	. .	44.0	9.0	34.0	0.0	25.0	. .	. .	10 34.40	+13.17	. .	+16.50	1 11 4.07	— 1.41
	37	β Arietis	F.	3.7	6.5	8.0	14.6	16.8	19.0	25.4	27.0	29.9	47 16.77	— 0.24	+16.49	+16.50	1 47 33.03	+ 0.03
	38	Mercury II, N.	F.	49.3	52.0	53.5	59.7	1.8	3.8	10.0	11.6	14.2	52 1.77	— 0.33	. .	+16.50	1 52 17.94	— 0.37
	39	Venus II, S.	F.	45.4	47.0	51.0	53.1	55.2	57.3	59.4	3.5	5.0	52 55.21	— 0.33	. .	+16.50	1 53 11.38	— 0.36
	40	Venus, N.	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
8	41	Sun I, N.	F.	59.5	2.2	3.7	10.1	12.3	14.5	21.0	22.5	25.2	2 12.33	— 0.26	. .	+16.49	3 2 28.56	. .
	42	Sun II, S.	F.	12.8	15.3	17.0	23.4	25.5	27.8	34.2	35.8	38.4	4 25.58	— 0.26	. .	+16.49	3 4 41.81	. .
	43	α Tauri	F.	4.3	7.0	8.6	14.9	17.0	19.0	25.6	27.2	29.8	28 17.04	— 0.27	+16.55	+16.49	4 28 33.26	— 0.08
	44	β Tauri	F.	40.5	43.5	45.2	52.2	54.4	56.8	3.6	5.4	8.6	17 54.47	— 0.17	+16.44	+16.48	5 18 10.78	+ 0.02
	45	δ Orionis	F.	58.9	1.2	3.0	9.0	10.9	12.9	19.0	20.7	23.0	25 10.96	— 0.41	+16.40	+16.48	5 25 27.03	+ 0.05
	46	ε Orionis	F.	. .	. .	21.8	23.9	25.9	27.9	29.9	. .	. .	29 25.88	— 0.42	+16.56	+16.48	5 29 41.94	— 0.09
	47	α Orionis	F.	45.0	47.6	49.2	55.1	57.2	59.4	5.6	7.0	9.7	47 57.31	— 0.35	+16.51	+16.48	5 48 13.44	— 0.06
	48	o Virginis	F.	13.6	16.2	17.8	24.0	25.9	28.0	34.4	35.8	38.4	58 26.01	— 0.28	+16.45	+16.44	11 58 42.17	— 0.03
	49	XII, 5	F.	15.0	17.9	19.7	26.6	28.8	31.2	38.2	39.9	42.8	20 28.90	— 0.63	. .	+16.44	12 20 44.71	— 0.95
	50	XII, 15	F.	18.4	21.5	23.4	30.5	32.9	35.4	42.4	44.3	47.4	44 32.91	— 0.67	. .	+16.44	12 44 48.68	— 1.09

5, 15. Bisections at wires I, II, B_1, and B_3.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Correction.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	7 40	25.6	25.7	20.8	22.9	39	. .	714	. .	806	. .	53.6	352 16 45.9	. .	— 7.8	43 22 59.3	— 0.9
2	294 56	2.4	1.0	29.7	29.9	37	. .	930	. .	924	. .	53.6	65 0 24.3	721	+ 2 3.4	116 8 48.9	+ 0.5
3	310 46	3.0	0.7	25.1	0.1	40	. .	207	. .	203	. .	53.6	49 10 58.2	. .	+ 1 6.9	100 18 26.3	+ 0.5
4	0 12	29.5	28.7	23.7	25.8	35	. .	782	. .	802	. .	53.6	359 43 48.0	. .	— 0.3	50 50 8.9	+ 0.4
5	351 14	1.7	1.5	26.4	28.6	37	. .	431	. .	471	. .	53.6	8 42 31.8	. .	+ 8.9	59 49 1.3	—11.1
6	351 4	1.7	0.8	25.9	28.6	36	. .	. .	. .	772	784	53.6	8 52 5.4	. .	+ 9.0	59 58 35.6	—11.2
7	136 34	3.5	1.9	28.0	1.4	28	. .	. .	. .	. .	412	53.6	223 19 53.4	736	+ 54.7	7 45 33.1	+ 0.1
8	354 16	2.9	2.5	27.0	28.9	33	. .	984	. .	940	. .	53.6	5 39 23.2	739	+ 5.8	56 45 50.2	—12.3
9	358 6	4.7	4.0	28.7	1.2	35	. .	. .	. .	430	404	53.6	1 49 47.6	. .	+ 1.9	52 56 10.7	—13.0
10	13 26	0.4	0.3	26.2	26.8	37	. .	642	. .	668	. .	53.6	346 30 18.3	. .	— 14.0	37 36 25.5	0.0
11	29 30	23.7	23.5	19.0	20.8	41	. .	134	. .	222	. .	53.6	330 27 6.1	. .	— 33.0	21 32 54.3	—15.1
12	29 30	23.7	23.5	19.0	20.8	42	126	. .	. .	. .	130	53.6	330 27 21.7	743	— 33.0	21 33 9.9	—15.1
13	347 8	0.0	29.1	23.2	26.3	41	. .	750	. .	650	. .	53.6	12 49 18.9	. .	+ 13.2	63 55 53.3	—12.9
14	47 38	25.0	24.9	20.1	23.0	39	. .	. .	. .	152	212	53.6	312 18 36.2	. .	— 1 3.9	3 23 53.5	+ 0.8
15	19 46	2.0	2.0	27.3	29.0	39	005	. .	. .	. .	000	53.6	340 10 40.3	. .	— 21.0	31 16 40.5	—17.6
16	312 44	0.5	28.8	24.5	28.3	38	. .	770	. .	760	. .	53.6	47 12 34.4	. .	+ 1 2.9	98 19 58.5	+ 0.6
17	359 42	28.5	28.2	23.5	25.5	36	. .	483	. .	493	. .	53.6	0 13 58.2	. .	+ 0.2	51 20 19.6	+ 0.8
18	53 46	0.2	0.2	25.1	27.6	34	740	740	680	740	750	53.6	306 9 32.6	759	— 1 19.7	357 14 34.1	+ 1.5
19	49 38	3.5	5.8	1.8	4.5	33	335	. .	300	. .	370	52.9	310 17 16.4	610	— 1 5.2	1 22 32.4	— 0.8
20	330 40	29.2	29.7	26.1	28.6	35	. .	. .	. .	140	190	52.9	29 15 39.4	. .	+ 30.8	80 22 31.4	
21	337 48	2.4	2.9	0.2	1.9	32	560	572	. .	. .	. .	52.9	22 7 2.2	. .	+ 22.2	73 13 45.6	
22	338 20	2.9	3.0	1.3	2.6	33	. .	. .	. .	445	525	52.9	21 35 17.4	525	+ 21.6	72 42 0.2	
23	337 18	10.4	11.4	10.4	10.8	37	. .	105	. .	065	. .	52.9	22 38 20.7	. .	+ 22.6	73 45 4.5	+ 3.3
24	312 42	7.1	6.3	6.2	7.4	35	. .	510	. .	486	. .	52.9	47 13 52.2	. .	+ 58.4	98 21 11.8	+ 2.7
25	349 32	8.8	8.1	6.5	8.1	34	. .	620	. .	590	. .	52.9	10 23 39.8	. .	+ 9.9	61 30 10.9	+ 1.5
26	320 40	7.2	5.8	4.5	7.3	39	. .	020	. .	950	. .	52.9	39 16 45.3	. .	+ 44.2	90 23 50.7	+ 2.1
27	319 46	12.3	12.0	9.3	12.8	36	. .	106	. .	160	. .	52.9	40 10 6.8	. .	+ 45.6	91 17 13.6	+ 2.1
28	328 26	15.6	14.2	13.8	15.5	36	. .	725	. .	715	. .	52.9	31 30 19.1	. .	+ 33.2	82 37 13.5	+ 4.0
29	342 16	10 11.0	10.0	7.0	8.0	35	. .	218	. .	256	. .	51.9	17 39 49.7	. .	+ 17.7	68 46 28.6	— 0.2
30	306 58	15.7	14.5	13.0	13.8	34	. .	610	. .	630	. .	51.9	52 57 45.2	. .	+ 1 13.4	104 5 19.8	+ 1.4
31	284 48	14.0	12.6	9.0	11.8	32	. .	800	. .	900	. .	51.9	75 7 5.5	. .	+ 3 25.2	126 16 51.9	—14.1
32	320 56	8.3	7.3	8.0	8.0	36	. .	110	. .	120	. .	51.9	39 0 1.9	. .	+ 45.0	90 7 8.1	+ 1.6
33	336 20	7.3	5.8	3.6	3.8	36	. .	178	. .	172	. .	51.9	23 36 0.2	. .	+ 24.3	74 42 45.7	+ 0.9
34	321 6	12.1	10.1	8.7	8.8	35	. .	106	. .	112	. .	51.9	38 49 48.5	. .	+ 44.8	89 56 54.5	+ 0.6
35	52 24	10.2	10.5	7.3	8.7	37	100	. .	070	. .	120	51.9	307 32 18.1	592	— 1 12.5	358 37 26.8	+ 0.1
36	49 38	5.2	6.9	3.6	5.8	33	334	346	290	290	295	51.7	310 17 16.3	538	— 1 4.4	1 22 33.1	— 0 3
37	341 14	2.1	1.3	28.0	1.0	38	. .	722	. .	728	. .	51.7	18 42 34.6	. .	+ 18.4	69 49 14.2	+ 1.2
38	330 0	28.6	27.2	25.5	27.6	35	285	320	. .	. .	. .	51.7	29 55 38.7	. .	+ 31.3	81 2 31.2	
39	331 6	2.8	3.1	1.2	3.6	32	. .	. .	. .	718	. .	51.7	28 49 4.8	510	+ 30.0	79 55 56.0	
40	331 6	2.8	3.1	1.2	3.6	32	. .	. .	. .	. .	045	51.7	28 48 54.7	. .	+ 29.9	79 55 45.8	
41	338 36	29.1	0.0	27.5	26.6	33	054	130	. .	. .	. .	51.7	21 19 5.5	482	+ 21.2	72 25 47.9	
42	338 4	1.5	0.0	27.1	27.0	32	. .	. .	. .	054	004	51.7	21 50 50.5	. .	+ 21.7	72 57 33.4	
43	337 18	5.8	5.7	1.4	7.2	37	. .	. .	. .	514	520	49.1	22 38 18.1	. .	+ 22.5	73 45 1.8	+ 0.6
44	349 32	2.6	2.8	1.5	3.1	35	. .	066	. .	066	. .	49.1	10 23 37.8	. .	+ 9.9	61 30 8.9	— 0.5
45	320 40	2.7	2.2	29.9	3.3	39	. .	. .	. .	360	350	49.1	39 16 43.0	. .	+ 44.0	90 23 48.2	— 0.3
46	319 46	4.2	4.3	0.5	4.6	36	. .	. .	. .	870	876	49.1	40 10 6.2	450	+ 45.4	91 17 12.8	+ 1.4
47	328 26	6.2	5.8	0.0	6.7	37	. .	406	. .	412	. .	49.1	31 30 15.8	444	+ 33.0	82 37 10.0	+ 0.6
48	330 30	6.0	4.2	2.3	2.0	38	. .	492	. .	488	. .	50.3	29 26 32.6	576	+ 31.5	80 33 25.3	+ 1.6
49	293 4	9.5	6.3	1.5	6.9	36	. .	602	. .	616	. .	50.3	66 52 5.9	. .	+ 2 9.9	118 0 37.0	—11.7
50	289 44	8.6	5.7	1.3	4.2	36	. .	906	. .	896	. .	50.3	70 12 9.3	594	+ 2 34.1	121 21 4.6	—11.8

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
19	. .	. .	78.5
22	. .	. .	85.0
35	. .	. .	74.0
36	. .	. .	85.5
41	. .	. .	89.5
47	. .	. .	93.4
48	30.104	77.0	73.6

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
20	— 2.7	+ 5.3	. .	+ 2.7
21	— 3.2	— 15 52.7	. .	— 15 55.9
22	— 3.2	+ 15 52.7	. .	+ 15 49.5
38	— 7.0	+ 5.3	. .	— 1.7
39	— 2.6	— 5.1	. .	— 7.7
40	— 2.6	+ 5.1	. .	+ 2.5
41	— 3.1	+ 15 52.7	. .	+ 15 49.6
42	— 3.2	— 15 52.7	. .	— 15 55.9

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
May 8	1	12 Canum Venat.	F.	31.5	34.9	36.8	44.7	. .	50.0	57.9	59.8	3.3	49 47.36	0.00	+16.34	+16.44	12 50 3.80	+ 0.10
	2	θ Virginis	F.	52.0	54.7	56.1	2.3	4.4	6.5	12.6	14.2	16.7	3 4.39	— 0.40	+16.52	+16.44	13 3 20.43	— 0.12
	3	Polaris, S. P.	F.	. .	. .	56.0	27.0	. .	36.0	15.0	. .	. .	11 3.70	—15.72	. .	+16.44	1 11 4.42	— 1.37
	4	58 Virginis	F.	17.6	20.1	21.8	28.0	30.0	32.0	38.1	39.7	42.3	10 29.96	— 0.44	. .	+16.44	13 10 45.96	— 1.09
9	5	Polaris, S. P.	Ha.	. .	. .	30.0	47.0	5.2	19.7	50.0	. .	. .	11 5.14	. .	. .	. .	. . .	. .
	6	94 Virginis	Ha.	4.2	6.7	8.2	14.5	16.5	18.5	24.7	26.3	28.8	59 16.49	— 0.29	. .	+16.10	13 59 32.30	— 1.23
	7	B. A. C. 4722	Ha.	53.6	56.3	57.9	4.2	6.4	8.6	15.0	16.6	19.3	8 6.43	— 0.37	. .	+16.10	14 8 22.16	— 1.27
	8	λ Virginis	Ha.	44.0	46.6	48.0	54.5	56.6	58.7	4.9	6.5	9.0	11 56.53	+ 0.33	. .	+16.10	14 12 12.30	— 1.00
	9	θ Bootis	Ha.	15.9	20.2	22.7	32.8	36.0	39.5	49.7	52.0	56.2	20 36.11	+ 0.31	. .	+16.10	14 20 52.52	— 0.04
	10	ε Bootis	Ha.	55.5	58.4	0.1	7.0	9.3	11.5	18.6	20.2	23.2	39 9.31	0.00	+16.06	+16.10	14 39 25.41	+ 0.02
	11	α^2 Libræ	Ha.	20.9	23.5	25.0	31.5	33.5	35.6	42.0	43.6	46.1	43 33.52	— 0.35	+16.15	+16.10	14 43 49.27	— 0.06
	12	B. A. C. 4923	Ha.	32.3	35.0	36.7	43.3	45.4	47.6	54.3	55.8	58.6	49 45.44	— 0.40	. .	+16.10	14 50 1.14	— 1.36
	13	ι Libræ	Ha.	28.5	31.0	32.7	39.2	41.4	43.6	50.0	51.6	54.4	4 41.38	— 0.39	. .	+16.10	15 4 57.09	— 1.37
10	14	θ Virginis	S.	52.7	55.4	57.0	3.0	5.1	7.2	13.3	14.8	17.4	3 5.10	— 0.34	+15.75	+15.73	13 3 20.49	— 0.06
	15	Polaris, S. P.	S.	. .	. .	52.0	28.0	. .	36.0	11.0	. .	. .	11 1.40	. .	. .	. .	. . .	. .
	16	α Virginis	S.	0.3	3.0	4.6	10.8	12.9	14.9	21.0	22.7	25.3	18 12.83	— 0.38	+15.79	+15.73	13 18 28.18	— 0.08
	17	ι Virginis	S.	28.7	31.3	33.0	39.2	41.2	43.3	49.6	51.3	53.9	19 41.28	— 0.39	. .	+15.73	13 19 56.62	— 1.12
	18	5 Ursæ Minoris	S.	. .	. .	21.0	29.8	38.5	47.2	55.9	. .	. .	27 38.48	+ 0.79	. .	+15.72	14 27 54.99	— 0.30
	19	ε^1 Bootis	S.	55.8	58.9	0.4	. .	. .	. .	19.0	20.6	23.6	39 9.72	— 0.13	. .	+15.72	14 39 25.31	— 0.08
	20	ε^2 Bootis	S.	. .	. .	5.1	7.5	9.7	12.1	14.5	. .	. .	39 9.78	— 0.13	+15.72	+15.72	14 39 25.37	— 0.02
	21	B. A. C. 4923[1]	S.	31.6	34.5	36.1	. .	. .	. .	53.8	55.4	58.0	49 44.90	— 0.45	. .	+15.72	14 50 0.17	— 1.37
	22	B. A. C. 4923[2]	S.	. .	. .	41.5	43.7	45.8	48.1	50.3	. .	. .	49 45.88	— 0.45	. .	+15.72	14 50 1.15	— 1.37
	23	48 Cephei, S. P.	S.	45.2	33.4	26.5	8.4	. .	49.7	40.1	30.5	. .	4 49.46	— 1.25	. .	+15.71	3 4 3.92	+ 0.39
	24	β Libræ	S.	41.0	43.5	45.0	51.2	53.3	55.4	1.6	3.0	5.7	10 53.30	— 0.37	+15.68	+15.71	15 10 8.64	+ 0.03
	25	28 Libræ	S.	. .	. .	20.3	22.4	24.6	26.7	28.9	. .	. .	13 24.58	— 0.43	. .	+15.71	15 13 39.86	— 1.35
	26	ρ^1 Libræ	S.	35.7	38.5	40.0	46.5	48.6	50.7	57.0	58.7	1.3	20 48.56	— 0.42	. .	+15.71	15 21 3.85	— 1.37
	27	B. A. C. 5155	S.	3.5	6.7	8.7	16.6	19.2	22.0	29.8	31.8	35.1	30 19.27	— 0.03	. .	+15.71	15 30 34.95	— 1.81
	28	α Serpentis	S.	31.4	34.0	35.6	41.8	43.9	45.9	52.0	53.7	56.2	37 43.83	— 0.27	+15.67	+15.71	15 37 59.27	+ 0.06
	29	B. A. C. 5249	S.	3.0	9.0	12.3	25.8	30.2	34.8	48.3	51.6	57.2	44 30.24	— 0.26	. .	+15.71	15 44 46.21	— 3.09
	30	ε Coronæ Borealis	S.	49.4	52.4	54.2	0.9	3.2	5.6	12.6	14.3	17.0	52 3.29	— 0.14	. .	+15.71	15 52 18.86	— 0.10
	31	ω^2 Scorpii	S.	27.0	29.8	31.5	38.0	40.2	42.6	49.0	50.7	53.3	59 40.23	— 0.45	. .	+15.70	15 59 55.48	— 1.11
	32	B. A. C. 5434	S.	21.7	24.7	26.3	33.0	35.2	37.5	44.2	45.9	48.7	10 35.24	— 0.16	. .	+15.70	16 10 50.78	— 1.47
	33	B. A. C. 5473	S.	38.3	41.3	43.0	50.3	52.7	55.1	2.3	4.0	7.1	16 52.68	— 0.11	. .	+15.70	16 17 8.27	— 1.58
	34	Polaris	E.	. .	. .	50.0	13.5	38.0	3.5	27.0	. .	. .	10 38.40	. .	. .	. .	. . .	. .
	35	β Arietis	E.	4.8	7.7	9.3	15.8	18.0	20.2	26.6	28.3	31.0	47 17.97	— 0.34	+15.45	+15.49	1 47 33.12	+ 0.06
	36	α Arietis	E.	27.9	30.7	32.4	38.9	41.2	43.4	50.0	51.7	54.5	59 41.19	— 0.32	+15.49	+15.49	1 59 56.36	+ 0.01
	37	Venus II, N.	E.	40.8	43.4	45.0	51.1	53.3	55.5	1.6	3.3	5.8	6 53.31	— 0.42	. .	+15.49	2 7 8.38	— 0.36
	38	Venus S.	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . .	. .
11	39	Sun I, N.	E.	45.7	47.3	51.6	53.7	55.8	58.0	0.2	4.6	6.2	13 55.90	— 0.36	. .	+15.47	3 14 11.01	. .
	40	Sun II, S.	E.	56.6	59.4	1.0	7.5	9.6	11.8	18.2	19.9	22.6	16 9.62	— 0.36	. .	+15.47	3 16 24.73	. .
	41	α Tauri	E.	5.5	8.2	9.8	16.0	18.2	20.3	26.7	28.3	31.0	28 18.22	— 0.38	+15.48	+15.45	4 28 33.29	— 0.05
	42	β Orionis	E.	54.6	57.3	58.8	5.0	7.2	9.3	15.4	17.0	19.6	8 7.13	— 0.60	+15.50	+15.45	5 8 21.98	— 0.05
	43	β Tauri	E.	41.6	44.6	46.4	53.3	55.7	58.0	5.0	6.6	9.6	17 55.64	— 0.27	+15.37	+15.45	5 18 10.82	+ 0.06
	44	δ Orionis	E.	. .	. .	7.8	10.0	12.0	14.0	16.0	. .	. .	25 11.96	— 0.52	+15.50	+15.44	5 25 26.88	— 0.12
	45	ε Orionis	E.	14.8	17.5	18.9	25.0	27.0	29.0	35.3	36.9	39.4	29 27.09	— 0.52	+15.44	+15.44	5 29 42.01	— 0.01
	46	α Orionis	E.	46.0	48.8	50.3	56.3	58.4	0.5	6.7	8.3	10.9	47 58.47	— 0.45	+15.44	+15.44	5 48 13.46	— 0.03
	47	γ Geminorum	E.	50.3	53.0	54.5	0.8	2.9	5.0	11.6	13.2	15.9	30 3.02	— 0.38	+15.43	+15.43	6 30 18.07	— 0.03
	48	α Canis Majoris	E.	1.8	4.5	6.0	12.4	14.5	16.6	23.0	24.7	27.4	39 14.54	— 0.66	+15.42	+15.43	6 39 29.31	— 0.07
	49	Moon I	E.	26.2	29.0	30.7	37.7	40.0	42.2	49.2	51.1	53.8	41 39.99	— 0.30	. .	+15.43	6 41 36.12	+67.12
	50	l Leonis	E.	5.4	7.9	9.6	15.8	17.8	19.9	26.2	27.7	30.4	42 17.86	— 0.17	+14.40	+14.36	10 42 32.05	— 0.04

18. Bisections at wires B_1 and D_3.
23. Bisections at wires B_1 and C_5.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	0 2	7.0	7.0	2.0	4.2	32	. .	. .	. .	370	330	50.3	359 53 0.0	. .	— 0.1	50 59 21.2	+ 1.1
2	316 12	10.4	8.7	4.4	5.6	36	. .	768	. .	754	. .	50.3	43 44 10.8	. .	+ 53.7	94 51 24.5	+ 0.1
3																	
4	311 10	11.0	7.8	2.3	6.5	32	. .	104	. .	100	. .	50.3	48 44 57.7	616	+ 1 4.1	99 52 23.0	— 8.0
5																	
6	312 46	10.5	10.6	5.0	6.4	34	135	. .	. .	. .	190	52.5	47 9 32.7	596	+ 1 0.4	98 16 54.3	— 8.0
7	303 26	5.9	5.2	29.5	1.5	30	540	. .	. .	. .	560	52.5	56 28 32.0	. .	+ 1 24.6	107 36 17.8	— 8.6
8	308 16	8.6	8.0	2.1	4.6	33	. .	900	. .	875	. .	52.5	51 39 26.2	. .	+ 1 10.9	102 46 58.3	— 7.7
9	13 28	1.7	3.9	27.3	26.9	33	. .	. .	. .	675	640	52.5	346 27 17.5	608	— 13.6	37 33 25.1	+ 0.7
10	348 40	1.3	1.4	25.2	26.4	39	. .	000	. .	010	. .	52.5	11 16 37.8	. .	+ 11.2	62 23 10.2	+ 0.6
11	305 32	4.4	4.0	26.8	0.6	32	. .	280	. .	305	. .	52.5	54 22 57.3	. .	+ 1 18.5	105 30 37.0	+ 0.2
12	300 14	6.0	5.5	28.9	2.5	37	. .	. .	. .	650	590	52.5	59 42 20.7	. .	+ 1 36.2	110 50 18.1	— 7.9
13	301 46	6.9	5.5	0.0	2.5	38	. .	520	. .	450	. .	52.5	58 10 34.7	623	+ 1 30.7	109 18 26.6	— 7.6
14	316 12	6.2	6.1	0.6	2.6	36	. .	920	. .	952	. .	52.7	43 44 11.3	588	+ 53.5	94 51 26.0	+ 1.7
15	52 24	4.2	5.8	29.6	2.5	37	. .	. .	455	. .	400	52.7	307 32 18.0	590	— 1 12.7	358 37 26.5	+ 0.4
16	310 34	6.2	5.5	29.1	3.1	37	185	190	. .	. .	. .	52.7	49 22 14.6	. .	+ 1 5.3	100 29 41.1	+ 1.1
17	309 2	3.6	2.5	26.5	1.1	40	. .	. .	. .	660	690	52.7	50 55 5.6	. .	+ 1 9.0	102 2 35.8	— 8.4
18	37 18	1.5	1.5	25.4	28.4	38	080	. .	. .	. .	130	52.7	322 38 25.0	606	— 42.8	13 44 3.4	— 1.6
19	348 40	1.0	0.2	24.0	27.6	38	800	. .	. .	. .	900	52.7	11 16 35.5	. .	+ 11.2	62 23 7.9	— 1.5
20	348 40	1.0	0.2	24.0	27.6	39	. .	054	. .	050	. .	52.7	11 16 38.3	. .	+ 11.2	62 23 10.7	+ 1.3
21	300 14	4.3	3.2	26.4	1.2	37	. .	. .	. .	505	. .	52.7	59 42 17.3	. .	+ 1 35.9	110 50 14.4	— 8.0
22	300 14	4.3	3.2	26.4	1.2	37	. .	. .	. .	. .	857	52.7	59 42 22.5	. .	+ 1 35.9	110 50 19.6	— 8.0
23	63 44	5.0	6.0	0.6	3.8	32	. .	848	. .	810	. .	52.7	296 11 8.0	612	— 1 53.9	347 15 35.3	+ 0.2
24	312 10	2.6	1.4	24.6	29.2	41	. .	590	. .	510	. .	52.7	47 47 17.7	. .	+ 1 1.9	98 54 40.8	+ 2.5
25	303 22	6.1	4.4	28.2	3.1	35	. .	. .	. .	766	840	52.7	56 33 52.8	612	+ 1 25.0	107 41 39.0	— 7.4
26	304 48	1.2	29.2	22.9	27.6	38	. .	660	. .	640	. .	52.7	55 8 31.4	. .	+ 1 20.6	106 16 13.2	— 7.3
27	0 28	1.5	1.7	25.0	27.4	34	. .	796	. .	780	. .	52.7	359 27 33.6	. .	— 0.5	50 33 54.3	— 6.0
28	327 52	3.0	2.0	25.3	0.0	34	. .	044	. .	002	. .	52.7	32 3 22.8	. .	+ 35.2	83 10 19.2	+ 0.8
29	24 2	2.0	2.5	24.4	27.9	38	. .	055	. .	065	. .	52.7	335 54 24.6	. .	— 25.2	27 0 20.6	— 5.5
30	348 18	1.3	0.8	23.7	27.1	38	. .	. .	. .	856	840	52.7	11 38 35.2	614	+ 11.6	62 45 8.0	+ 1.6
31	300 32	4.5	2.4	0.7	26.5	34	. .	090	. .	100	. .	52.7	59 23 24.7	. .	+ 1 34.8	110 31 20.7	— 6.3
32	344 28	2.9	2.5	25.4	28.9	32	. .	408	. .	412	. .	52.7	15 26 58.0	. .	+ 15.6	66 33 34.8	— 7.9
33	352 14	4.9	3.8	27.3	0.0	37	. .	. .	. .	192	210	52.7	7 42 13.3	618	+ 7.6	58 48 42.1	— 8.8
34	49 38	9.7	11.2	5.6	8.7	33	. .	060	. .	045	. .	51.9	310 17 16.2	543	— 1 4.4	1 22 33.0	— 1.0
35	341 14	10.2	10.8	6.1	7.9	38	. .	010	. .	000	. .	51.9	18 42 31.9	. .	+ 18.4	69 49 11.5	— 1.4
36	343 54	7.7	8.2	3.2	4.8	36	. .	600	. .	660	. .	51.9	16 2 8.0	. .	+ 15.6	67 8 44.8	+ 0.7
37	332 26	12.0	13.0	8.8	10.7	35	648	. .	. .	. .	594	51.9	27 29 57.7	. .	+ 28.3	78 36 47.2	
38	332 26	12.0	13.0	8.8	10.7	36	. .	225	. .	215	. .	51.9	27 30 6.8	. .	+ 28.3	78 36 56.3	
39	339 24	1.7	1.5	28.5	0.2	37	575	545	. .	. .	. .	51.9	20 32 16.6	452	+ 20.2	71 38 58.0	
40	338 52	1.6	1.5	28.6	0.3	36	. .	. .	. .	380	432	51.9	21 3 59.4	. .	+ 20.7	72 10 41.3	
41	337 18	14.2	15.3	15.0	13.5	36	. .	910	. .	942	. .	50.0	22 38 19.2	440	+ 22 4	73 45 2.8	+ 1.7
42	312 42	8.8	8.9	5.2	8.5	35	. .	440	. .	400	. .	50.0	47 13 49.2	. .	+ 58.1	91 21 8.5	0.0
43	349 32	9.9	10.8	7.5	10.0	34	. .	582	. .	612	. .	50.0	10 23 38.5	. .	+ 9.9	61 30 9.6	+ 0.1
44	320 40	7.3	7.8	2.7	6.2	39	. .	010	. .	980	. .	50.0	39 16 42.4	. .	+ 44.0	90 23 47.6	— 0.6
45	319 46	13.0	14.5	9.0	13.4	36	. .	150	. .	120	. .	50.0	40 10 4.9	. .	+ 45.4	91 17 11.5	+ 0.4
46	328 26	11.0	11.3	9.8	11.1	37	. .	008	. .	988	. .	50.0	31 30 16.6	. .	+ 33.0	82 37 10.8	+ 1.6
47	337 32	9.4	10.7	5.8	8.6	31	. .	640	. .	638	. .	50.0	22 22 52.0	. .	+ 22.2	73 29 35.5	+ 0.1
48	304 32	11.6	11.0	5.8	11.9	39	. .	970	. .	990	. .	50.0	55 25 1.5	. .	+ 1 17.8	106 32 40.5	+ 0.7
49																	
50	332 16	15.7	15.2	9.7	12.3	34	. .	970	. .	950	. .	53.9	27 39 51.5	. .	+ 29.7	78 46 42.4	+ 1.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
4	30.118	75.0	69.0
9	30.040	76.0	68.0
14	30.096	77.0	72.0
34	. .	. .	84.5
39	. .	. .	92.0
41	. .	. .	92.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
37	— 2.5	+ 4.6	. .	+ 2.1
38	— 2.5	— 4.6	+ 0.1	— 7.0
39	— 3.0	+ 15 51.6	. .	+ 15 48.6
40	— 3.1	— 15 51.6	. .	— 15 54.7

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
May 13	1	δ Leonis	E.	51.0	53.9	55.6	2.1	4.4	6.5	13.0	14.7	17.5	7 4.30	— 0.09	+14.32	+14.36	11 7 18.57	— 0.02
	2	δ Crateris	E.	30.5	33.0	34.9	41.0	43.1	45.3	51.5	53.1	55.7	12 43.12	— 0.36	+14.32	+14.41	11 12 57.17	+ 0.07
	3	Anonymous	F.	8.2	11.2	13.5	21.3	23.7	26.5	34.0	35.8	39.0	17 23.69	— 0.59	. .	+14.41	11 17 37.51	— 0.59
	4	Anonymous	F.	59.8	3.0	4.8	12.6	15.0	17.8	25.7	27.5	30.7	23 15.21	— 0.59	. .	+14.41	11 23 29.03	— 0.63
	5	Anonymous	F.	58.6	2.0	4.0	12.0	14.6	17.4	25.0	27.0	30.4	25 14.56	— 0.61	. .	+14.41	11 25 28.36	— 0.66
	6	β Leonis	F.	5.5	8.3	9.7	16.1	18.3	20.5	26.7	28.3	31.0	42 18.27	— 0.14	+14.39	+14.40	11 42 32.53	— 0.01
	7	XI, 16	F.	6.2	9.3	11.1	18.5	20.7	23.3	30.6	32.5	35.5	50 20.86	— 0.53	. .	+14.40	11 50 34.73	— 0.77
	8	XI, 17	F.	13.2	16.0	17.9	24.9	27.4	29.9	36.8	38.5	41.5	55 27.34	— 0.50	. .	+14.40	11 55 41.24	— 0.79
	9	o Virginis	F.	15.5	18.1	19.6	25.9	27.9	30.0	36.2	37.7	40.2	58 27.90	— 0.18	+14.42	+14.40	11 58 42.12	— 0.04
	10	XII, 1	F.	49.4	52.5	54.0	0.9	3.3	5.4	12.4	14.0	17.0	5 3.21	— 0 47	. .	+14.40	12 5 17.14	— 0.83
	11	XII, 2	F.	28.1	31.2	33.0	40.1	42.5	44.9	52.0	53.7	56.8	8 42.48	— 0.51	. .	+14.40	12 8 56.37	— 0.87
	12	η Virginis	F.	. .	. .	6.0	8.2	10.1	12.2	16.4	18.0	20.5	13 8.17	— 0.25	+14.40	+14.40	12 13 22.32	— 0.02
	13	XII, 6	F.	9.4	12.3	13.8	20.5	22.7	24.9	31.6	33.2	35.9	23 22.70	— 0.43	. .	+14.40	12 23 36.67	— 0.91
	14	β Corvi	F.	13.8	16.5	18.2	24.8	27.0	29.2	35.9	37.5	40.3	27 27.02	— 0.43	+14.31	+14.40	12 27 40.99	+ 0.05
	15	XII, 8	F.	53.8	57.2	58.9	6.4	9.4	11.8	19.5	21.2	24.7	33 9.21	— 0.58	. .	+14.39	12 33 23.02	— 1.11
	16	12 Canum Venat.	F.	33.2	36.5	38.5	46.5	49.0	51.8	59.6	1.5	4.9	49 49.06	+ 0.06	+14.53	+14.39	12 50 3.51	— 0.14
	17	Polaris, S. P.	F.	. .	. .	. .	32:0	. .	. .	. .	. .	. .	11 7.70	. .	. .	. .	. . . .	. .
	18	Polaris	S.	. .	. .	. .	. .	. .	59.0	10.0	19.0	2.0	. . .	. .	. .	. .	. . . .	. .
	19	α Arietis	S.	28.9	31.6	33.3	40.0	42.3	44.4	51.0	52.8	55.5	59 42.20	— 0.31	+14.52	+14.48	1 59 56.37	— 0.03
14	20	Sun I, S.	S.	31.4	34.0	35.7	42.2	44.3	46.6	53.0	54.8	57.5	25 44.39	— 0.34	. .	+14.47	3 25 58.52	. .
	21	Sun II, N.	S.	45.7	48.3	50.2	56.6	58.6	1.0	7.1	9.0	11.8	27 58.70	— 0.34	. .	+14.47	3 28 12.83	. .
	22	α Tauri	S.	6.5	9.2	10.7	17.1	19.3	21.5	27.8	29.4	32.0	28 19.28	— 0.36	+14.42	+14.47	4 28 33.39	+ 0.03
	23	β Orionis	S.	58.8	58.3	59.9	6.2	8.2	10.2	16.4	18.0	20.5	8 8.17	— 0.61	+14.47	+14.46	5 8 22.02	— 0.01
	24	μ Leonis	F.	1.0	4.0	5.7	12.5	14.7	17.0	24.0	25.6	28.5	45 14.78	— 0.18	+14.29	+14.35	9 45 28.95	+ 0.05
	25	α Leonis	F.	6.7	9.4	11.0	17.2	19.3	21.5	27.8	29.3	31.9	1 19.34	— 0.33	+14.37	+14.35	10 1 33.36	— 0.06
	26	γ^1 Leonis	F.	27.9	30.6	32.2	38.8	41.0	43.1	49.6	51.2	54.0	12 40.93	— 0.24	+14.34	+14.35	10 12 55.04	— 0.01
	27	l Leonis	F.	5.6	8.3	9.9	16.0	18.1	20.2	26.4	27.9	30.6	42 18.11	— 0.34	+14.31	+14.35	10 42 32.12	+ 0.04
	28	α Ursæ Majoris	F.	8.3	13.9	17.0	30.5	34.9	39.2	52.6	55.9	1.2	55 34.83	+ 0.58	. .	+14.35	10 55 49.76	— 0.02
	29	δ Leonis	F.	51.2	53.9	55.5	2.1	4.3	6.5	13.0	14.6	17.6	7 4.30	— 0.23	+14.45	+14.35	11 7 18.42	— 0.16
	30	δ Crateris	F.	30.6	33.4	35.0	41.2	43.3	45.5	51.7	53.3	56.0	12 43.33	— 0.62	+14.36	+14.35	11 12 57.06	— 0.03
	31	Anonymous	F.	0.0	3.8	5.5	13.0	15.6	18.0	25.8	27.6	30.7	23 15.56	— 0.96	. .	+14.35	11 23 28.95	— 0.62
	32	Anonymous	F.	54.3	56.9	58.4	4.6	6.5	8.7	15.1	16.6	19.0	35 6.68	— 0.35	. .	+14.34	11 35 20.67	— 0.71
	33	β Leonis	F.	5.7	8.5	10.0	16.5	18.5	20.5	26.9	28.5	31.0	42 18.46	— 0.30	+14.35	+14.34	11 42 32.50	— 0.03
	34	12^1 Canum Venat.	S.	32.0	35.6	37.6	45.2	47.7	50.6	58.5	0.7	3.7	49 47.96	+ 0.10	. .	+14.32	12 50 2.38	. .
	35	12^2 Canum Venat.	S.	33.4	36.8	38.8	46.6	49.2	51.9	59.8	1.7	5.0	49 49.24	+ 0.10	+14.31	+14.32	12 50 3.66	+ 0.01
	36	θ Virginis	S.	54.4	56.8	58.5	4.5	6.7	8.7	14.8	16.4	18.9	3 6.63	— 0.44	+14.31	+14.32	13 3 20.51	— 0.03
	37	Polaris, S. P.	S.	59.5	56.0	. .	39.0	11.0	. .	. .	. .	. .	11 13.72	. .	. .	. .	. . . .	. .
	38	i Virginis	S.	. .	. .	40.7	42.8	44.9	47.0	49.1	. .	. .	19 44.90	— 0.53	. .	+14.32	13 19 58.69	— 1.12
	39	75 Virginis	S.	. .	. .	. .	48.7	50.9	53.1	57.0	58.9	1.4	25 48.74	— 0.56	. .	+14.31	13 26 2.49	— 1.15
	40	XIII, 22	S.	. .	. .	8.7	11.2	13.6	16.0	18.5	. .	. .	34 13.60	— 0.80	. .	+14.31	13 34 27.11	— 1.28
	41	XIII, 24	S.	6.0	9.3	11.1	18.6	21.1	23.7	31.3	33.1	36.3	41 21.17	— 0.85	. .	+14.31	13 41 34.63	— 1.35
	42	η Bootis	S.	9.6	12.4	14.0	20.5	22.5	24.7	31.2	32.8	35.6	48 22.59	— 0.18	+14.32	+14.31	13 48 36.72	— 0.06
	43	95 Virginis	S.	. .	. .	40.0	42.1	44.2	46.3	48.4	. .	. .	59 44.20	— 0.49	. .	+14.31	13 59 58.02	— 1.24
	44	α Bootis	S.	23.6	26.3	28.0	34.3	36.6	39.0	45.2	47.0	49.6	9 36.62	— 0.16	+14.32	+14.31	14 9 50.77	— 0.01
	45	XIV, 14	S.	43.0	46.0	47.6	54.5	56.7	59.0	5.8	7.4	10.2	21 56.69	— 0.70	. .	+14.31	14 22 10.30	— 1.37
	46	XIV, 16	S.	. .	. .	38.9	41.4	43.9	46.4	48.9	. .	. .	29 43.90	— 0.85	. .	+14.31	14 29 57.36	— 1.51
	47	XIV, 20	S.	19.4	22.5	24.0	31.5	33.8	36.1	43.2	45.2	48.2	38 33.77	— 0.78	. .	+14.31	14 38 47.30	— 1.48
	48	XIV, 22	S.	39.6	43.0	45.0	. .	. .	. .	5.5	7.6	10.6	41 55.22	— 0.88	. .	+14.31	14 42 8.65	— 1.57
	49	β Libræ	S.	42.4	45.1	46.6	52.8	54.8	56.9	3.1	4.7	7.3	9 54.86	— 0.48	+14.26	+14.30	15 10 8.68	+ 0.04
	50	o^2 Libræ	S.	28.4	31.0	32.8	39.1	41.1	43.3	49.7	51.3	54.0	15 41.19	— 0.55	. .	+14.30	15 15 54.94	— 1.40

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	342 16	10.3	9.5	4.0	7.0	35	. .	230	. .	215	. .	53.9	17 39 50.1	. .	+ 18.1	68 46 29.4	+ 1.2
2	306 58	13.4	10.8	6.3	10.2	34	. .	610	. .	612	. .	53.9	52 57 43.0	. .	+ 1 15.1	104 5 19.3	+ 0.9
3	283 20	10.2	8.1	1.4	7.0	39	. .	560	. .	572	. .	53.9	76 36 55.5	. .	+ 3 53.9	127 47 10.6	−14.9
4	283 22	9.0	7.5	0.3	6.0	40	. .	268	. .	290	. .	53.9	76 35 5.4	. .	+ 3 53.5	127 45 20.1	−14.8
5	281 38	8.9	6.8	0.4	6.0	35	. .	864	. .	860	. .	53.9	78 17 57.3	. .	+ 4 27.2	129 28 45.7	−15.1
6	336 20	9.6	8.1	2.8	6.3	35	. .	920	. .	924	. .	53.9	23 35 59.8	684	+ 24.9	74 42 45.9	+ 1.7
7	288 30	4.1	1.2	25.8	1.0	41	. .	. .	. .	176	190	53.9	71 27 14.0	. .	+ 2 48.0	122 36 23.2	−13.4
8																	
9	330 30	4.1	2.5	27.4	1.8	38	. .	312	. .	326	. .	53.9	29 26 31.4	. .	+ 32.2	80 33 24.8	+ 1.5
10	293 44	8.7	6.7	0.5	6.8	39	. .	728	. .	722	. .	53.9	66 12 57.0	. .	+ 2 8.6	117 21 26.8	−12.2
11	290 6	8.2	5.4	29.0	5.5	36	. .	048	. .	042	. .	53.9	69 49 59.2	. .	+ 2 33.9	120 58 54.3	−12.9
12	321 6	7.1	4.8	29.4	5.0	37	. .	250	. .	254	. .	53.9	38 50 17.5	. .	+ 45.9	89 57 24.6	+ 1.0
13	298 4	10.7	7.6	2.5	8.8	33	. .	320	. .	304	. .	53.9	61 51 20.2	. .	+ 1 46.3	112 59 27.7	−11.0
14	298 22	11.2	8.3	2.8	9.4	33	. .	500	. .	490	. .	53.9	61 33 23.5	. .	+ 1 45.0	112 41 29.7	+ 1.5
15	283 56	5.3	1.5	23.9	1.1	33	. .	560	. .	564	. .	53.9	75 59 17.0	698	+ 4 42.8	127 10 21.0	−13.4
16	0 2	3.4	1.5	27.0	1.0	32	. .	340	. .	346	. .	53.9	359 52 59.0	. .	− 0.1	50 59 20.1	+ 1.0
17	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	706			
18																	
19	343 54	1.7	27.1	21.5	29.4	37	. .	. .	. .	090	030	53.9	17 2 8.1	690	+ 17.5	68 8 46.8	+ 0.8
20	339 36	28.2	27.0	21.2	26.1	36	000	050	. .	. .	. .	53.9	20 19 50.2	. .	+ 20.7	71 26 32.1	
21	340 8	2.5	2.4	27.0	2.4	36	. .	. .	. .	910	930	53.9	19 48 9.9	603	+ 20.1	70 54 51.2	
22																	
23	312 42	26.2	26.1	20.8	27.0	35	. .	900	. .	900	. .	53.9	47 13 47.6	622	+ 1 0.6	98 21 9.4	+ 1.3
24	347 40	3.8	3.7	28.0	1.7	39	. .	546	. .	564	. .	54.7	12 16 51.7	638	+ 12.2	63 23 25.1	+ 2.2
25	333 38	2.8	2.0	27.0	0.4	34	. .	986	. .	018	. .	54.7	26 17 40.3	. .	+ 27.8	77 24 29.3	+ 1.5
26	341 32	5.1	4.8	29.7	2.6	36	. .	220	. .	212	. .	54.7	18 24 1.5	. .	+ 18.8	69 30 41.5	+ 2.9
27	332 16	5.5	5.0	29.7	3.2	35	. .	548	. .	536	. .	54.7	27 39 51.4	668	+ 29.7	78 46 42.3	+ 1.6
28	23 28	11.0	10.5	4.8	7.7	33	. .	150	. .	130	. .	54.7	336 27 20.2	676	− 24.7	27 33 16.7	+ 0.3
29	342 16	7.8	7.5	2.2	4.9	35	. .	280	. .	286	. .	54.7	17 39 49.8	. .	+ 18.1	68 46 29.1	+ 1.0
30	306 58	2.0	1.0	25.8	1.5	35	. .	240	. .	230	. .	54.7	52 57 43.3	. .	+ 1 15.2	104 5 19.7	+ 1.3
31	283 22	7.8	6.8	0.5	5.7	40	. .	. .	. .	576	. .	54.7	76 35 10.2	. .	+ 3 53.7	127 45 25.1	−14.9
32	331 34	4.6	4.3	29.0	2.5	31	. .	850	. .	826	. .	54.7	28 20 53.8	. .	+ 30.7	79 27 45.7	− 1.6
33	336 20	0.3	0.2	25.1	27.1	36	. .	. .	. .	380	370	54.7	23 35 59.1	. .	+ 24.9	74 42 45.2	+ 1.0
34	0 2	27.3	27.5	21.5	25.8	33	. .	. .	. .	512	. .	54.7	359 53 22.6	. .	− 0.1	50 59 43.7	
35	0 2	27.3	27.5	21.5	25.8	32	. .	. .	. .	. .	628	54.7	359 52 59.3	. .	− 0.1	50 59 20.4	+ 1.5
36	316 12	0.2	29.8	24.9	28.8	37	. .	087	. .	103	. .	54.7	43 44 10.3	707	+ 54.6	104 51 26.1	+ 1.9
37																	
38	309 2	0.4	29.4	25.0	29.7	40	. .	. .	. .	644	650	54.7	50 55 4.9	. .	+ 1 10.3	102 2 36.4	− 8.4
39	306 22	29.5	27.3	21.4	28.1	39	. .	. .	. .	470	510	54.7	53 34 45.1	. .	+ 1 17.3	104 42 23.6	− 8.8
40	288 8	27.9	27.0	20.0	27.2	36	. .	. .	. .	270	. .	54.7	70 47 54.5	718	+ 2 42.8	121 56 58.5	−11.2
41	286 2	29.1	27.0	21.3	28.0	37	. .	030	. .	008	. .	54.7	73 54 6.8	718	+ 3 15.6	125 3 43.6	−11.3
42	340 4	29.2	28.3	22.3	27.1	32	. .	382	. .	360	. .	54.7	19 50 56.2	. .	+ 20.7	70 57 38.1	+ 1.3
43	312 20	24.4	22.9	17.4	23.4	. .	. .	. .	. .	338	368	54.7	47 34 51.0	717	+ 1 2.6	98 42 14.8	− 7.7
44	340 54	28.5	27.3	22.0	26.5	38	. .	145	. .	095	. .	54.7	19 2 23.8	. .	+ 19.8	70 9 4.8	+ 1.4
45	295 38	27.5	26.4	20.4	26.8	37	. .	. .	. .	525	491	54.7	64 18 13.3	722	+ 1 58.5	115 26 33.0	− 9.2
46	286 8	27.4	26.0	20.0	26.6	37	. .	382	. .	382	. .	54.7	73 48 11.1	. .	+ 3 14.5	124 57 46.8	−10.6
47	289 56	26.3	25.9	19.4	26.0	35	. .	490	. .	530	. .	54.7	69 59 41.7	. .	+ 2 36.1	121 8 39.0	− 9.1
48	284 14	29.6	29.3	23.0	28.5	35	. .	510	. .	590	. .	54.7	75 41 45.5	. .	+ 3 41.0	126 51 47.7	− 9.2
49	312 8	27.5	26.0	20.2	26.7	33	. .	698	. .	720	. .	54.7	47 47 14.9	732	+ 1 3.2	98 54 39.3	+ 1.1
50	306 24	29.1	27.4	22.0	28.0	40	. .	430	. .	370	. .	54.7	53 32 59.2	. .	+ 1 17.6	104 40 38.0	− 7.5

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
6	30.038	71.5	62.0
17	30.066	71.0	59.2
21	. .	. .	75.0
24	30.184	71.0	71.2

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
20	− 3.0	− 15 50.4	. .	− 15 53.4
21	− 2.9	+ 15 50.4	. .	+ 15 47.5

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
May 14	1	ζ^1 Libræ	S.	16.5	19.0	20.7	27.0	29.2	31.3	37.7	39.3	42.0	25 29.19	— 0.58	. .	+14.30	15 25 42.91	— 1.42
	2	Anonymous	S.	39.5	41.0	45.4	47.8	50.0	52.3	54.4	59.0	0.6	31 50.00	— 0.67	. .	+14.30	15 32 3.63	— 1.46
	3	η Libræ	S.	27.3	30.0	31.6	38.0	40.2	42.4	48.6	50.2	52.9	36 40.13	— 0.56	. .	+14.30	15 36 53.87	— 1.42
	4	β^1 Scorpii	S.	34.6	37.2	39.0	. .	. .	. .	56.1	57.8	0.5	57 47.53	— 0.62	+14.36	+14.30	15 58 1.21	— 0.03
	5	β^2 Scorpii	S.	. .	. .	43.7	45.9	48.2	50.3	52.4	. .	. .	57 48.10	— 0.62	. .	+14.30	15 58 1.78	. .
16	6	Moon I, N.	S.	50.2	52.7	54.4	0.6	2.9	5.1	11.6	13.0	15.9	59 2.93	— 0.32	. .	+14.06	10 59 16.67	+64.02
	7	δ Crateris	S.	. .	. .	39.3	41.3	43.4	45.5	47.8	. .	. .	12 43.46	— 0.49	+14.08	+14.06	11 12 57.03	— 0.04
	8	Anonymous	S.	59.4	2.5	4.5	9.8	15.2	20.7	25.9	27.6	31.2	25 15.20	— 0.79	. .	+14.06	11 25 28.47	— 0.61
	9	XI, 10	S.	37.0	40.3	42.0	49.8	52.4	55.1	2.7	4.4	7.5	36 52.36	— 0.74	. .	+14.06	11 37 5.68	— 0.67
	10	XI, 16	S.	6.7	9.7	11.6	19.0	21.3	23.7	31.0	33.0	36.0	50 21.33	— 0.70	. .	+14.06	11 50 34.69	— 0.74
	11	o Virginis	S.	15.9	18.6	20.0	26.3	28.3	30.4	36.7	38.2	40.8	58 28.36	— 0.28	+14.03	+14.05	11 58 42.13	0.00
	12	XII, 3	S.	. .	. .	56.2	58.5	0.7	3.0	5.3	. .	. .	10 0.74	— 0.62	. .	+14.05	12 10 14.17	— 0.83
	13	XII, 4	S.	. .	. .	48.3	50.7	52.9	55.6	57.8	. .	. .	16 53.06	— 0.66	. .	+14.05	12 17 6.45	— 0.88
	14	β Corvi	S.	. .	. .	23.1	25.2	27.4	29.7	31.9	. .	. .	27 27.46	— 0.58	+14.00	+14.05	12 27 40.93	+ 0.01
	15	XII, 7	S.	. .	. .	38.1	40.5	42.9	45.0	47.5	. .	. .	30 42.80	— 0.62	. .	+14.05	12 30 56.23	— 0.94
	16	XII, 10	S.	. .	. .	9.3	11.5	13.9	15.9	18.3	. .	. .	36 13.78	— 0.60	. .	+14.05	12 36 27.23	— 0.98
	17	θ Virginis	S.	. .	. .	4.9	6.9	8.9	11.0	15.1	16.6	19.2	3 6.87	— 0.41	+14.03	+14.05	13 3 20.51	— 0.02
	18	Polaris, S. P.	S.	. .	. .	6.0	40.0	16.0	49.0	24.0	. .	. .	11 15.00	. .	. .	. .	. . . .	. .
	19	α Virginis	S.	2.0	4.7	6.2	12.5	14.6	16.7	23.0	24.5	27.2	18 14.60	— 0.46	+14.09	+14.05	13 18 28.19	— 0.06
	20	ν Virginis	S.	53.8	56.5	57.9	4.2	6.3	8.3	14.4	15.9	18.6	25 6.21	— 0.42	. .	+14.05	13 25 19.84	— 1.13
	21	80 Virginis	S.	27.0	29.6	31.1	37.3	39.3	41.3	47.5	49.2	51.6	28 39.32	— 0.41	. .	+14.05	13 28 52.96	— 1.15
	22	XIII, 25	S.	. .	. .	. .	. .	24.4	26.7	31.6	33.3	36.4	48 22.96	— 0.66	. .	+14.04	13 48 36.34	— 1.32
	23	α Draconis	S.	. .	. .	34.1	38.9	43.8	48.8	53.8	. .	. .	0 43.88	+ 0.64	. .	+14.04	14 0 58.56	— 0.06
	24	α Bootis	S.	23.6	26.5	28.2	34.8	37.0	39.1	45.7	47.2	49.9	9 36.89	— 0.19	+14.07	+14.04	14 9 50.74	— 0.03
	25	ι Cassiopeæ, S. P.	S.	48.5	42.0	. .	27.8	22.4	17.3	. .	42.0	48.5	18 17.34	— 1.37	. .	+14.04	2 18 30.01	+ 0.46
19	26	θ Virginis	E.	55.3	57.9	59.5	5.6	7.6	9.6	15.9	17.5	20.0	3 7.66	— 0.69	+13.50	+13.51	13 3 20.48	— 0.03
	27	Polaris, S. P.	E.	. .	. .	10.0	46.5	21.0	55.5	31.0	. .	. .	11 20.80	. .	. .	. .	. . . .	. .
	28	α Virginis	E.	3.0	5.6	7.2	13.4	15.5	17.6	23.8	25.4	28.0	18 15.50	— 0.76	+13.48	+13.51	13 18 28.25	— 0.01
	29	Moon I, N.	E.	13.5	16.3	17.9	24.0	26.0	28.1	34.5	36.1	38.7	25 26.12	— 0.69	. .	+13.51	13 25 38.94	+65.76
	30	η Bootis	E.	10.6	13.2	14.9	21.4	23.5	25.7	32.3	34.0	36.6	48 23.58	— 0.43	+13.56	+13.51	13 48 36.66	— 0.10
	31	α Arietis	F.	. .	. .	. .	. .	. .	45.6	48.0	53.9	56.8	59 43.40	— 0.19	+13.33	+13.33	1 59 56.54	+ 0.01
20	32	Sun I, N.	F.	. .	. .	. .	. .	. .	. .	44.5	45.9	48.6	49 35.63	— 0.23	. .	+13.31	3 49 48.71	. .
	33	Sun II, S.	F.	37.7	40.6	42.2	48.8	50.8	53.0	59.7	1.2	3.8	51 50.87	— 0.23	. .	+13.31	3 52 3.95	. .
	34	ε Orionis	F.	17.0	19.6	21.0	27.2	29.3	31.3	37.6	38.9	41.5	29 29.27	— 0.50	+13.22	+13.30	5 29 42.07	+ 0.07
	35	α Orionis	F.	48.2	50.8	52.5	58.8	0.6	2.7	8.9	10.4	12.9	48 0.64	— 0.39	+13.19	+13.30	5 48 13.55	+ 0.08
	36	γ Geminorum	F.	52.4	55.2	56.5	2.8	5.0	7.1	13.6	15.2	17.9	30 5.08	— 0.27	+13.21	+13.28	6 30 18.09	+ 0.03
	37	θ Virginis	F.	55.5	58.0	59.5	5.7	7.7	9.8	16.0	17.5	20.0	3 7.74	— 0.56	+13.29	+13.23	13 3 20.41	— 0.10
	38	Polaris, S. P.	F.	. .	. .	15.0	49.5	24.0	58.0	. .	. .	. .	11 24.18	. .	. .	. .	. . . .	. .
	39	α Virginis	F.	3.0	5.6	7.3	13.6	15.6	17.6	24.0	25.4	28.0	18 15.57	— 0.63	+13.28	+13.23	13 18 28.17	— 0.07
	40	α Bootis	F.	. .	. .	. .	37.7	39.8	41.9	46.5	48.0	50.8	9 37.68	— 0.26	+13.35	+13.22	14 9 50.64	— 0.13
	41	Moon I. N.	F.	42.7	45.4	46.8	53.3	55.4	57.5	4.0	5.3	8.0	17 55.38	— 0.63	. .	+13.22	14 18 7.97	+67.82
21	42	XII, 13	Ha.	54.2	56.9	58.7	5.4	7.7	10.0	16.9	18.6	21.1	43 7.72	— 0.75	. .	+13.41	12 43 20.38	— 1.23
	43	XII, 10	Ha.	28.5	32.0	33.8	41.7	44.3	46.9	54.8	56.7	0.0	50 44.30	— 0.95	. .	+13.41	12 50 56.76	— 1.10
	44	θ Virginis	Ha.	55.3	57.8	59.4	5.5	7.6	9.7	15.9	17.3	19.8	3 7.59	— 0.50	+13.38	+13.41	13 3 20.50	— 0.01
	45	Polaris, S. P.	Ha.	. .	. .	13.0	48.0	22.0	0.0	36.0	. .	. .	11 23.80	. .	. .	. .	. . . .	. .
	46	XIII, 11	Ha.	34.0	37.0	39.3	46.8	49.3	51.9	59.7	1.4	4.5	22 49.32	— 0.92	. .	+13.41	13 23 1.81	— 1.26
	47	XIII, 25	Ha.	8.6	11.5	13 2	20.2	22.7	25.0	32.1	34.0	37.0	48 22.70	— 0.82	. .	+13.41	13 48 35.29	— 1.31
	48	XIII, 28	Ha.	4.5	7.6	9.6	17.0	19.7	22.1	29.9	31.8	35.0	53 19.69	— 0.93	. .	+13.41	13 33 32.17	— 1.42
	49	α Bootis	Ha.	24.7	27.4	28.9	35.6	37.6	39.7	46.4	48.0	50.5	9 37.64	— 0.23	+13.36	+13.41	14 9 50.82	+ 0.05
	50	XIV, 6	Ha.	20.4	23.5	30.3	33.4	35.7	38.2	40.7	48.0	51.0	12 35.69	— 0.94	. .	+13.41	14 12 48.16	— 1.51

6. Bisections at wires II–VI.
10, 19, 41. Bisections at sets B and D.
25. Bisections at wires B_3 and C_6.
27. Telescope micrometer reading increased ten revolutions in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	304 38	27.7	26.2	21.0	26.8	34	. .	150	. .	170	. .	54.7	55 17 22.1	. .	+ 1 22.7	106 25 6.0	— 7.3
2	297 40	24.6	23.4	18.9	24.8	32	075	. .	. .	. .	095	54.7	62 14 47.8	. .	+ 1 48.8	113 22 57.8	— 7.2
3	305 48	26.7	25.0	18.7	26.2	37	. .	522	. .	492	. .	54.7	54 8 12.3	. .	+ 1 19.3	105 15 52.8	— 7.1
4	301 36	0.4	28.5	23.2	28.6	33	. .	970	. .	000	. .	54.7	58 19 21.6	736	+ 1 32.9	109 27 15.7	— 1.1
5	301 36	0.4	28.5	23.2	28.6	33	. .	040	. .	140	. .	54.7	58 19 7.9	. .	+ 1 32.8	109 27 1.9	
6	332 58	10 21.0	21.4	16.6	19.4	35	801	901	161	281	461	52.6	26 58 14.4	. .	+ 28.9	78 5 4.5	
7	306 58	9 26.7	26.4	22.0	25.5	35	. .	. .	. .	680	680	52.6	52 57 42.9	662	+ 1 15.2	104 5 19.3	+ 1.0
8	281 38	9 28.4	27.9	21.4	25.0	36	. .	. .	. .	360	540	52.6	78 17 55.0	672	+ 4 27.2	129 28 43.4	—15.4
9	284 38	28.3	27.6	21.1	25.6	40	. .	890	. .	970	. .	52.6	75 19 4.0	. .	+ 3 34.0	126 28 59.2	—14.6
10	288 30	9 28.5	27.8	22.5	26.1	41	635	. .	. .	. .	580	52.6	71 27 15.2	. .	+ 2 48.6	122 36 25.0	—13.6
11	330 30	9 25.5	25.3	20.1	22.1	38	. .	840	. .	920	. .	52.6	29 26 30.5	690	+ 32.3	80 33 24.0	+ 1.0
12	295 10	29.7	28.6	22.8	27.2	32	. .	505	. .	525	. .	52.6	64 44 56.3	690	+ 2 0.7	115 53 18.2	—12.0
13	291 26	2.9	2.0	26.9	1.0	32	. .	330	. .	350	. .	52.6	68 28 57.2	. .	+ 2 24.2	119 37 42.6	—12.7
14	298 22	29.9	29.4	23.7	27.5	34	. .	135	. .	190	. .	52.6	61 33 22.1	. .	+ 1 45.4	112 41 28.7	+ 0.3
15	294 38	28.7	28.1	21.2	26.3	35	. .	275	. .	240	. .	52.6	65 17 37.4	. .	+ 2 4.0	116 26 2.6	—11.8
16	296 46	4.1	3.3	25.3	0.4	33	. .	. .	. .	480	455	52.6	63 9 14.5	. .	+ 1 52.8	114 17 28.5	—11.3
17	316 12	2.7	2.8	27.3	29.8	36	. .	. .	. .	945	965	52.6	43 44 8.1	713	+ 55.0	94 51 24.3	+ 0 2
18	52 24	1.4	1.5	26.3	29.0	37	800	. .	788	. .	730	52.6	307 32 19.4	. .	— 1 14.8	358 37 25.8	+ 1.0
19	310 34	1.5	29.7	24.3	28.1	37	470	. .	. .	. .	475	52.6	49 22 13.9	. .	+ 1 7.0	100 29 42.1	+ 2.2
20																	
21	316 18	28.3	27.8	22.3	25.3	34	. .	475	. .	510	. .	52.6	43 37 25.6	. .	+ 54.9	94 44 41.7	— 6.9
22	291 8	26.9	25.2	19.5	24.4	38	. .	005	. .	013	. .	52.6	68 48 17.6	725	+ 2 27.8	119 57 6.6	—10.8
23	26 0	25.6	25.8	19.9	23.7	31	. .	860	. .	860	. .	52.6	333 54 43.7	733	— 28.3	25 0 36.6	— 2.7
24	340 54	0.0	28.0	23.0	26.0	38	. .	190	. .	100	. .	52.6	19 2 22.7	. .	+ 20.0	70 9 3.9	+ 0.9
25	74 10	28.4	28.0	21.7	26.5	38	280	185	. .	. .	. .	52.6	285 46 23.2	736	— 3 21.9	336 49 22.5	+ 0.9
26	316 12	1.4	29.5	2.0	4.3	36	. .	940	. .	968	. .	53.8	43 44 10.6	. .	+ 53.5	94 51 25.3	+ 1.3
27	52 24	3.3	3.7	0.0	3.0	27	240	. .	235	. .	240	53.8	307 32 15.4	. .	— 1 12.7	358 37 23.9	— 0.3
28	310 34	7.2	5.3	2.5	5.1	37	. .	045	. .	025	. .	53.8	49 22 15.0	. .	+ 1 5.2	100 29 41.4	+ 1.5
29	315 58	8.3	6.3	3.4	4.9	40	. .	960	450	950	. .	53.8	43 59 23.6	. .	+ 54.0	95 6 38.8	
30	340 4	6.0	5.3	1.7	3.2	31	. .	820	. .	830	. .	53.8	19 50 54.2	628	+ 20.2	70 57 35.6	— 0.4
31	343 54	9 25.7	24.3	18.5	25.7	37	. .	212	. .	210	. .	52.9	16 2 5.5	558	+ 15.8	67 8 42.5	— 1.2
32	341 28	21.5	21.3	17.3	21.2	39	592	584	. .	. .	. .	52.9	18 28 38.7	522	+ 18.3	69 35 18.2	
33	340 56	19.6	18.0	16.4	19.0	38	. .	. .	. .	216	178	52.9	19 0 15.6	. .	+ 18.8	70 6 55.6	
34	319 47	{ 8 0.1 / 12 0.0	1.8 / 28.3	24.1 / 27.4	0.8 / 0.1	40	. .	. .	. .	724	728	52.9	40 10 4.8	. .	+ 45.9	91 17 11.9	+ 1.8
35	328 46	3.7	1.3	26.5	4.3	37	. .	284	. .	296	. .	52.9	31 10 14.5	502	+ 32.9	82 17 8.6	0.0
36	337 32	29.3	27.6	24.4	0.2	32	. .	106	. .	082	. .	52.9	22 22 51.2	. .	+ 22.4	73 29 34.8	— 0.4
37	316 12	3.4	0.4	27.4	1.0	37	. .	050	. .	046	. .	53.1	43 44 10.1	. .	+ 53.6	94 51 24.9	+ 0.9
38	52 24	2.6	0.5	27.9	2.0	37	368	380	370	380	. .	53.1	307 32 15.2	. .	— 1 12.8	358 37 23.6	— 0.4
39	310 34	4.0	1.2	27.5	2.3	37	. .	312	. .	310	. .	53.1	49 22 14.8	658	+ 1 5.3	100 29 41.3	+ 1.4
40	340 54	2.5	29.5	26.0	29.0	37	. .	. .	. .	972	968	53.1	19 2 23.1	678	+ 19.4	70 9 3.7	+ 1.3
41	309 58	3.5	0.0	25.7	1.8	30	470	. .	610	. .	802	53.1	49 56 31.2	686	+ 1 7.1	101 3 59.5	
42	295 56	29.1	28.6	24.4	26.9	38	. .	390	. .	425	. .	52.5	64 0 27.0	677	+ 1 56.0	115 8 44.2	—10.1
43	282 52	0.0	29.0	23.0	26.5	34	. .	015	. .	990	. .	52.5	77 3 19.0	. .	+ 4 2.2	128 13 42.4	—14.1
44	316 12	1.0	0.7	26.5	28.1	37	. .	140	. .	050	. .	52.5	43 44 8.8	. .	+ 54.4	94 51 24.4	+ 0.4
45	52 24	27.6	29.1	24.7	26.2	37	. .	795	835	820	. .	52.5	307 32 17.6	688	— 1 14.0	358 37 24.8	+ 1.0
46	284 50	28.5	27.6	22.2	24.5	34	. .	965	. .	910	. .	52.5	75 5 32.0	. .	+ 2 30.8	126 14 24.0	—12.9
47	291 8	27.7	25.9	21.9	24.5	38	. .	080	. .	100	. .	52.5	68 48 19.8	. .	+ 2 26.3	119 57 7.3	—11.2
48	284 16	2.9	1.8	27.0	29.1	40	. .	330	. .	355	. .	52.5	75 40 59.6	702	+ 3 40.0	126 51 0.8	—12.0
49	340 54	29.5	28.4	24.8	25.1	38	. .	060	. .	050	. .	52.5	19 2 21.5	. .	+ 19.7	70 9 2.4	+ 0.2
50	283 48	27.6	26.5	21.1	23.1	35	. .	905	. .	820	. .	52.5	76 7 45.1	. .	+ 3 47.5	127 17 53.8	—11.3

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
30	. .	. .	66.0
41	29.800	69.0	62.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
6	—24 58.3	+ 15 8.7	. .	— 9 49.6
29	—40 4.4	+ 15 49.4	. .	— 24 15.0
32	— 2.8	+ 15 48.7	. .	+ 15 45.9
33	— 2.8	— 15 48.7	. .	— 15 51.5
41	—44 51.3	+ 16 3.5	. .	— 28 47.8

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
May 21	1	XIV, 15 . . .	Ha.	14.6	17.4	19.2	25.9	28.2	30.5	37.5	39.3	42.0	24 28.29	— 0.78	. .	+13.41	14 24 40.92	— 1.42
	2	XIV, 17 . . .	Ha.	9.0	12.2	14.4	22.1	25.0	27.8	35.1	37.5	40.8	31 24.88	— 0.97	. .	+13.41	14 31 37.32	— 1.61
	3	α^2 Libræ	Ha.	23.9	26.6	28.2	34.5	36.7	38.8	45.1	46.7	49.3	43 36.64	— 0.62	+13.38	+13.41	14 43 49.43	+ 0.05
	4	β Libræ	Ha.	43.4	46.0	47.5	53.7	55.8	57.9	4.0	5.5	8.2	9 55.78	— 0.55	+13.47	+13.41	15 10 8.64	+ 0.06
	5	Moon I, N. . .	Ha.	55.3	58.0	59.7	6.2	8.4	10.7	17.1	18.7	21.7	14 8.42	— 0.64	. .	+13.41	15 14 21.19	+70.46
	6	α Coronæ Borealis .	Ha.	50.7	53.5	55.3	2.2	4.5	6.7	13.7	15.4	18.3	29 4.48	— 0.14	+13.44	+13.41	15 29 17.75	— 0.03
	7	B. A. C. 5175 . .	Ha.	33.8	37.4	39.5	48.2	50.9	53.6	2.2	4.3	7.9	33 50.87	+ 0.13	. .	+13.41	15 34 4.41	— 2.02
	8	B. A. C. 5249 . .	Ha.	5.2	11.0	14.2	27.7	32.3	36.7	50.0	53.5	59.2	44 32.20	— 0.70	. .	+13.41	15 44 46.31	— 3.14
	9	B. A. C. 5279 . .	Ha.	. .	. .	59.5	3.2	6.7	10.5	14.0	. .	. .	49 6.78	+ 0.44	. .	+13.41	15 49 20.63	— 2.58
	10	B. A. C. 5302 . .	Ha.	. .	. .	0.9	3.4	5.7	8.0	10.2	. .	. .	52 5.64	— 0.14	. .	+13.41	15 52 18.91	— 1.65
	11	B. A. C. 5338 . .	Ha.	19.5	23.2	25.3	34.1	37.2	40.2	49.0	51.2	55.0	58 37.19	+ 0.18	. .	+13.41	15 58 50.78	— 1.86
23	12	Sun I, S. . . .	S.	25.0	27.7	29.2	35.9	38.0	40.1	46.7	48.4	51.0	1 38.00	— 0.41	. .	+13.19	4 1 50.78	. .
	13	Sun II, N. . . .	S.	40.5	43.2	44.9	51.7	53.8	55.9	2.5	4.1	6.8	3 53.71	— 0.41	. .	+13.19	4 4 6.49	. .
	14	α Orionis . . .	S.	48.3	51.0	52.5	58.6	0.8	2.8	9.0	10.5	13.0	48 0.72	— 0.56	+13.28	+13.18	5 48 13.34	— 0.13
	15	o Virginis . . .	S.	17.0	19.6	21.1	27.3	29.4	31.4	37.6	39.2	41.8	58 29.38	— 0.54	+13.21	+13.14	11 58 41.98	— 0.09
	16	η Virginis . . .	S.	57.4	59.9	1.5	7.7	9.8	11.9	17.9	19.5	22.0	13 9.73	— 0.64	+13.16	+13.14	12 13 22.23	— 0.04
	17	XII, 8	S.	55.6	0.5	5.7	8.3	10.8	13.4	16.0	21.1	26.3	33 10.86	— 1.15	. .	+13.14	12 33 22.85	— 0.96
	18	XII, 12	S.	26.2	29.2	31.0	38.2	40.7	43.2	50.5	52.1	55.3	39 40.71	— 1.07	. .	+13.14	12 39 52.78	— 0.97
	19	XII, 17	S.	29.0	32.5	34.3	42.2	44.6	47.5	55.1	57.3	0.7	50 44.80	— 1.17	. .	+13.13	12 50 56.76	— 1.08
	20	Polaris, S. P. . .	S.	. .	. .	15.5	52.0	26.0	4.0	. .	. .	. .	11 26.92	—25.63	. .	+13.13	1 11 14.42	— 0.65
	21	XIII, 12 . . .	S.	3.5	6.6	8.4	15.2	17.6	19.7	26.8	28.5	31.4	25 17.52	— 0.99	. .	+13.13	13 25 29.66	— 1.18
	22	XIII, 18 . . .	S.	. .	. .	57.0	59.1	1.4	3.7	6.1	. .	. .	31 1.46	— 0.92	. .	+13.13	13 31 13.67	— 1.18
	23	XIII, 23 . . .	S.	16.8	20.0	22.1	29.9	32.4	35.0	42.7	44.8	48.2	40 32.43	— 1.16	. .	+13.13	13 40 44.40	— 1.36
	24	XIII, 26 . . .	S.	35.4	38.3	40.2	47.0	49.4	51.7	58.6	0.4	3.3	49 49.37	— 0.99	. .	+13.13	13 50 1.51	— 1.30
	25	XIII, 28 . . .	S.	4.7	8.0	10.0	17.7	20.1	22.7	30.6	32.6	35.7	53 20.23	— 1.14	. .	+13.13	13 53 32.22	— 1.41
	26	XIV, 1	S.	59.5	2.6	4.5	11.7	14.0	16.3	23.5	25.4	28.4	6 13.99	— 1.04	. .	+13.12	14 6 26.07	— 1.40
	27	XIV, 5	S.	20.0	23.0	24.6	31.5	33.9	36.2	43.2	45.0	47.9	12 33.92	— 0.98	. .	+13.12	14 12 46.06	— 1.38
	28	XIV, 16 . . .	S.	30.4	33.4	35.5	42.9	45.4	48.0	55.4	57.2	0.3	29 45.30	— 1.11	. .	+13.12	14 29 57.40	— 1.54
	29	Moon II . . .	S.	11.7	14.8	16.5	23.4	25.7	28.0	35.0	36.8	39.6	22 25.72	— 0.91	. .	+13.10	17 22 37.91	—75.61
	30	β Draconis . . .	S.	1.1	5.2	7.9	18.6	21.3	24.5	34.9	37.3	41.4	27 21.29	+ 0.21	. .	+13.10	17 27 34.60	— 0.02
	31	B. A. C. 5962 . .	S.	. .	. .	28.4	31.0	33.2	35.7	42.8	44.6	47.5	31 33.26	— 0.13	. .	+13.10	17 31 46.43	— 1.61
	32	μ Herculis . . .	S.	1.7	4.7	6.5	13.2	15.7	17.9	24.8	26.6	29.4	41 15.61	— 0.18	+13.08	+13.10	17 41 28.53	+ 0.02
	33	B. A. C. 6073 . .	S.	50.4	53.2	55.0	1.7	4.0	6.3	13.2	14.9	17.8	50 4.06	— 0.20	. .	+13.10	17 50 16.96	— 1.50
	34	B. A. C. 6150 . .	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	35	δ Ursæ Minoris. .	S.	. .	16.0	23.5	. .	. .	. .	52.5	17.2	59.5	13 33.50	+ 9.71	. .	+13.10	18 13 56.31	— 0.09
	36	B. A. C. 6287 . .	S.	16.5	19.3	20.9	27.3	29.5	31.8	38.3	39.8	42.5	22 29.54	— 0.76	. .	+13.10	18 22 41.88	— 1.40
	37	α Lyræ	S.	9.0	12.1	14.2	22.2	24.8	27.6	35.2	37.2	40.7	32 24.78	0.00	+13.05	+13.10	18 32 37.88	+ 0.07
	38	51 Cephei, S. P. . .	S.	. .	. .	48.0	5.5	24.5	40.0	56.5	. .	. .	39 22.90	—13.00	. .	+13.10	6 39 23.00	+ 0.20
	39	B. A. C. 6453 . .	S.	55.9	58.6	0.3	7.0	9.2	11.4	17.9	19.6	22.3	49 9.13	— 0.25	. .	+13.10	18 49 21.98	— 1.27
	40	ζ Aquilæ. . . .	S.	7.5	10.1	11.7	18.0	20.1	22.3	28.6	30.1	32.8	59 20.13	— 0.36	+13.04	+13.09	18 59 32.86	— 0.07
	41	d Sagittarii . . .	S.	44.6	47.4	49.0	55.5	57.7	0.0	6.2	8.0	10.7	9 57.68	— 0.76	+13.01	+13.09	19 10 10.01	+ 0.10
26	42	μ^1 Sagittarii . . .	S.	43.5	46.2	47.9	54.3	56.6	58.9	5.4	6.9	9.7	5 56.60	— 0.95	+12.40	+12.40	18 6 8.05	0.00
	43	δ Ursæ Minoris . .	S.	. .	. .	. .	. .	30.0	3.5	41.0	15.0	57.5	13 29.80	+12.87	. .	+12.40	18 13 55.07	— 1.60
	44	λ Sagittarii . . .	S.	40.9	43.8	45.5	52.3	54.4	56.7	3.5	5.1	8.0	19 54.47	— 1.04	. .	+12.40	18 20 5.83	— 1.56
	45	1 Aquilæ. . . .	S.	51.7	54.5	56.0	2.1	4.2	6.3	12.5	14.0	16.7	28 4.22	— 0.76	+12.43	+12.40	18 28 15.86	+ 0.04
	46	ϕ Sagittarii . . .	S.	15.6	19.0	20.6	27.4	29.6	32.0	38.9	40.6	43.6	37 29.70	— 1.07	. .	+12 39	18 37 41.02	— 1.53
	47	51 Cephei, S. P. . .	S.	43.0	48.0	16.5	. .	. .	. .	. .	. .	. .	. . .	—17.07	. .	+12.39	6 39 22.45	— 0.01
	48	ξ^1 Sagittarii . . .	S.	21.0	23.6	25.4	31.9	34.0	36.3	42.8	44.4	47.3	49 34.08	— 0.95	. .	+12.39	18 49 45.52	— 1.42
	49	o Sagittarii . . .	S.	37.3	40.2	42.0	48.5	50.6	53.0	59.6	1.1	4.1	56 50.71	— 0.97	. .	+12.39	18 57 2.13	— 1.40
	50	π Sagittarii . . .	S.	45.8	48.6	50.3	56.7	58.8	1.2	7.8	9.3	12.2	1 58.97	— 0.96	. .	+12.39	19 2 10.40	— 1.38

5. Bisections at wires II–VI.
9. Bisections at sets B and D.
47. Bisections at wires B_1, B_2, and B_3.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	293 56	29.8	28.7	24.5	27.7	36	. .	340	. .	240	. .	52.5	65 59 54.8	712	+ 2 7.9	117 8 23.9	− 9.8
2	282 6	3.0	2.0	26.2	29.9	36	. .	970	. .	925	. .	52.5	77 50 7.5	. .	+ 4 19.6	129 0 48.3	−10.7
3	305 32	29.9	27.8	23.4	27.4	32	. .	485	. .	560	. .	52.5	54 22 56.5	718	+ 1 19.9	105 30 37.6	+ 0.6
4	312 8	27.5	26.5	22.9	24.6	33	. .	800	. .	805	. .	52.5	47 47 14.4	. .	+ 1 3.2	98 54 38.8	+ 0.8
5	304 26	28.9	26.2	23.9	25.6	31	925	155	320	545	680	52.5	55 28 52.5	. .	+ 1 23.4	106 36 37.1	
6	348 12	29.8	29.5	24.5	26.6	39	. .	360	. .	400	. .	52.5	11 44 42.6	. .	+ 12.0	62 51 15.8	+ 1.2
7	5 4	29.0	28.9	25.0	25.0	38	. .	320	. .	335	. .	52.5	354 52 25.9	. .	− 5.2	45 58 41.9	− 2.9
8	24 2	27.5	26.9	22.0	22.8	38	. .	145	. .	175	. .	52.5	335 54 21.5	. .	− 25.7	27 0 17.0	− 2.1
9	17 14	0.4	0.2	25.5	26.0	35	190	. .	. .	. .	270	52.5	342 41 39.2	. .	− 17.9	33 47 42.5	− 3.0
10	348 18	25.7	24.8	20.0	21.1	39	. .	. .	. .	010	985	52.5	11 38 32.0	. .	+ 11.6	62 45 4.8	− 5.2
11	7 26	0.5	0.4	26.0	25.8	37	570	. .	. .	. .	625	52.5	352 30 16.3	730	− 7.6	43 36 29.9	− 4.3
12	341 30	5.1	4.6	29.6	2.3	32	753	747	. .	. .	. .	51.7	18 25 5.0	560	+ 18.3	69 31 44.5	
13	341 2	29.4	29.7	24.5	25.9	34	. .	. .	. .	603	627	51.7	17 53 28.5	. .	+ 17.7	69 0 7.4	
14	328 26	28.3	27.5	23.0	27.9	37	. .	586	. .	550	. .	51.7	31 30 12.8	574	+ 33.7	82 37 7.7	− 0.7
15	330 30	25.9	24.5	19.7	23.3	38	. .	710	. .	720	. .	54.7	29 26 30.2	. .	+ 31.8	80 23 23.2	+ 0.7
16	321 6	2.2	1.3	26.2	0.0	37	. .	423	. .	499	. .	54.7	38 50 17.4	677	+ 45.4	89 57 24.0	+ 0.9
17	283 56	0.2	28.8	23.0	28.0	34	. .	000	. .	130	. .	54.7	75 59 22.6	684	+ 3 42.2	127 9 26.0	−14.4
18	288 28	27.5	25.4	20.5	25.2	36	. .	245	. .	390	. .	54.7	71 27 54.4	. .	+ 2 46.9	122 37 2.5	−13.4
19	282 52	0.3	28.1	22.6	27.9	33	. .	922	. .	032	. .	54.7	77 3 21.0	. .	+ 4 0.7	128 13 42.9	−14.3
20	52 24	28.0	27.4	22.9	28.1	37	. .	641	663	591	. .	54.7	307 32 16.7	696	− 1 13.6	358 37 24.3	+ 0.9
21	293 2	29.6	27.6	23.0	29.1	34	. .	790	. .	870	. .	54 7	66 53 34.2	. .	+ 2 12.0	118 2 7.4	−11.6
22	298 2	28.3	26.0	21.9	27.5	38	. .	. .	. .	300	230	54.7	61 54 25.5	. .	+ 1 45.7	113 2 32.4	−10.5
23	283 28	27.0	24.9	19.1	25.4	34	. .	070	. .	140	. .	54.7	76 27 19.8	698	+ 3 50.7	127 37 31.7	−12.8
24	293 4	29.2	27.7	22.8	29.5	36	. .	. .	. .	962	980	54.7	66 52 7.0	. .	+ 2 11.9	118 0 40.1	−11.0
25	284 16	29.7	27.2	22.2	27.6	40	. .	. .	. .	530	576	54.7	75 41 1.2	702	+ 3 38.4	126 51 0.8	−12.2
26	289 38	27.7	25.2	20.8	25.6	36	. .	333	. .	323	. .	54.7	70 17 54.7	. .	+ 2 37.0	121 26 52.9	−11.1
27	293 36	0.4	28.7	24.4	0.0	33	. .	180	. .	204	. .	54.7	66 19 10.1	. .	+ 2 8.6	117 27 39.9	−10.3
28	286 8	26.9	24.5	19.7	26.2	37	. .	. .	. .	. .	695	54.7	73 48 14.9	703	+ 3 12.7	124 57 48.8	−10.6
29	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . .	724			
30	13 26	26.3	26.2	21.1	24.4	37	. .	466	. .	488	. .	54.7	346 30 12.7	. .	− 13.7	37 36 20.2	− 0.3
31	351 54	27.0	25.5	21.2	24.1	35	. .	. .	. .	615	605	54.7	8 1 43.8	. .	+ 8.1	59 8 13.1	− 8.8
32	348 50	22.9	21.6	17.3	19.5	36	. .	. .	. .	. .	110	54.7	11 5 47.4	. .	+ 11.2	62 12 19.8	+ 1.2
33	347 6	28.9	27.9	22.3	25.7	33	. .	637	. .	669	. .	54.7	12 49 15.4	. .	+ 13.0	63 55 49.6	− 9.1
34	349 46	28.9	27.8	22.8	26.0	32	. .	030	. .	010	. .	54.7	10 8 50.5	730	+ 10.3	61 15 22.0	− 9.8
35	47 38	25.3	24.7	19.9	24.2	38	683	. .	712	. .	720	54.7	312 18 30.3	. .	− 1 3.0	3 23 48.5	+ 0.4
36	302 16	29.8	27.5	22.7	29.2	38	. .	890	. .	920	. .	54.7	57 40 36.9	. .	+ 1 30.5	108 48 28.6	− 2.5
37	359 42	28.0	26.8	21.6	24.9	36	. .	. .	. .	154	214	54.7	0 13 53.6	. .	+ 0.2	51 20 15.0	+ 0.4
38	53 46	27.6	27.0	23.3	27.3	34	350	360	300	340	375	54.7	306 9 25.8	740	− 1 18.5	357 14 28.5	− 0.1
39	343 32	26.5	25.0	20.2	24.2	38	. .	465	. .	445	. .	54.7	16 24 26.9	. .	+ 16.9	67 31 5.0	−10.2
40	334 44	29.8	27.1	22.3	26.0	39	. .	730	. .	795	. .	54.7	25 12 49.3	743	+ 27.1	76 19 37.6	− 0.2
41	301 54	26.6	23.1	18.2	24.8	32	. .	. .	. .	130	170	54.7	58 2 49.0	744	+ 1 32.0	109 10 42.2	+ 2.3
42	299 58	22.5	19.7	15.2	21.2	34	. .	. .	. .	640	665	57.0	59 57 26.0	743	+ 1 39.0	111 5 26.2	+ 1.0
43																	
44	295 36	0.2	27.6	22.7	28.7	40	. .	. .	. .	650	720	57.0	64 21 6.3	. .	+ 1 59.0	115 29 26.5	− 1.3
45	312 44	26.4	23.1	18.7	24.2	38	. .	895	. .	955	. .	57.0	47 12 35.3	743	+ 1 2.0	98 19 58.5	+ 2.5
46	293 58	23.0	19.8	15.1	20.5	39	. .	490	. .	680	. .	57.0	65 58 41.8	. .	+ 2 8.1	117 7 11.1	− 0.3
47	53 46	26.3	25.0	20.8	24.7	34	550	500	395	. .	. .	57.0	306 9 27.9	. .	− 1 18.5	357 14 30.6	+ 2.7
48	300 14	27.1	23.4	17.9	24.6	33	. .	. .	. .	950	925	57.0	59 41 18.6	745	+ 1 38.0	110 49 17.8	− 1.1
49	299 8	22.4	19.4	14.8	19.4	35	. .	. .	. .	130	160	57.0	60 47 32.9	. .	+ 1 42.4	111 55 36.5	− 0.6
50	299 50	18.8	17.9	12.6	18.2	34	. .	970	. .	990	. .	57.0	60 5 28.4	. .	+ 1 39.6	111 13 29.2	− 0.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
11	30.022	70.0	56.0
16	29.910	71.5	64.3
41	29.910	70.5	53.7

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
5	−48 56.3	+ 16 16.0	. .	− 32 40.3
12	− 2.7	− 15 48.6	. .	− 15 51.3
13	− 2.8	+ 15 48.6	. .	+ 15 45.8

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s	h. m. s	s.
May 26	1	Saturn I, S. . .	S.	54.8	57.5	59.3	. .	. .	. .	16.7	18.4	21.1	29 7.97	— 0.96	. .	+12.39	19 29 19.40	. .
	2	Saturn II, N. . .	S.	. .	. .	4.8	7.0	9.2	11.4	13.6	. .	. .	29 9.20	— 0.96	. .	+12.39	19 29 20.63	. .
	3	ω Sagittarii . . .	S.	35.9	38.7	40.6	47.5	49.6	52.0	58.8	0.5	3.3	47 49.66	— 1.06	. .	+12.38	19 48 0.98	— 1.25
	4	3 Ursæ Majoris, S.P.	S.	25.0	17.9	13.8	56.8	50.9	45.4	28.3	24.0	17.3	59 51.04	— 2.62	. .	+12.38	8 0 0.80	— 0.24
	5	a^1 Capricorni. . .	S.	. .	. .	18.4	20.6	22.7	24.8	26.9	. .	. .	10 22.68	— 0.82	. .	+12.38	20 10 34.24	
	6	a^2 Capricorni. . .	S.	34.0	36.8	38.3	44.5	46.6	48.7	55.0	56.6	59.1	10 46.62	— 0.82	+12.29	+12.38	20 10 58.18	+ 0.13
	7	B. A. C. 7077 . .	S.	51.0	54.0	55.6	2.4	4.7	7.0	13.6	15.3	18.2	25 4.64	— 1.04	. .	+12.38	20 25 15.98	— 1.05
	8	τ^2 Capricorni. . .	S.	43.6	46.1	47.8	54.1	56.2	58.3	4.6	6.3	9.0	31 56.22	— 0.86	. .	+12.37	20 32 7.73	— 0.93
	9	Moon II, N. . .	S.	12.9	15.8	17.5	24.2	26.4	28.8	35.8	37.6	40.4	44 26.60	— 1.00	. .	+12.37	20 44 37.97	—73.99
	10	θ Capricorni. . .	S.	. .	. .	32.1	34.2	36.4	38.5	42.9	44.5	47.1	58 34.24	— 0.90	. .	+12.37	20 58 45.71	— 0.80
	11	β Aquarii. . . .	S.	25.8	28.3	29.8	36.0	38.0	40.1	46.4	47.9	50.4	24 38.08	— 0.72	+12.44	+12.37	21 24 49.73	— 0.04
	12	ε Pegasi	S.	30.1	32.7	34.4	40.5	42.6	44.6	50.8	52.5	55.2	37 42.60	— 0.48	+12.35	+12.36	21 37 54.48	+ 0.02
	13	β Arietis	E.	8.5	11.2	12.8	19.5	21.6	23.7	30.4	31.9	34.7	47 21.59	— 0.48	+12.32	+12.30	1 47 33.41	0.00
27	14	Sun I	E.	36.0	39.0	40.4	. .	. .	. .	. .	. .	. .	17 49.14	— 0.46	. .	+12.25	4 18 0.93	. .
	15	Sun II	E.	52.2	55.0	56.6	3.3	5.4	7.5	14.1	15.7	18.6	20 5.38	— 0.46	. .	+12.25	4 20 17.17	. .
	16	12 Canum Venat. .	E.	. .	. .	46.0	48.7	51.4	54.0	56.7	. .	. .	49 51.36	+ 0.02	+12.12	+12.11	12 50 3.49	— 0.01
	17	θ Virginis . . .	E.	56.8	1.0	5.0	7.0	9.1	11.1	13.1	17.4	21.5	3 9.11	— 0.78	+12.11	+12.11	13 3 20.44	— 0.04
	18	Polaris, S. P. . .	E.	. .	. .	36.0	15.0	42.0	10.0	45.0	. .	. .	11 41.60	. .	. .	. .	. . . .	. .
	19	l^2 Virginis . . .	E.	. .	. .	4.2	6.5	8.6	10.7	12.7	. .	. .	25 8.54	— 0.80	. .	+12.11	13 25 19.85	— 1.10
	20	XIII, 22 . . .	E.	. .	. .	11.3	13.6	16.2	18.7	21.2	. .	. .	34 16.20	— 1.32	. .	+12.10	13 34 26.98	— 1.25
	21	XIII, 24 . . .	E.	8.8	12.1	13.9	21.2	23.8	26.5	34.0	35.7	38.9	41 23.88	— 1.37	. .	+12.10	13 41 34.61	— 1.31
	22	η Bootis	E.	12.0	14.7	16.4	23.0	25.0	27.1	33.6	35.5	38.0	48 25.03	— 0.40	+12.06	+12.09	13 48 36.72	— 0.02
	23	27 Capricorni. . .	E.	. .	. .	59.2	1.5	3.7	6.1	8.2	. .	. .	2 3.74	— 1.05	. .	+11.98	21 2 14.67	— 0.84
	24	ζ Cygni	E.	4.0	7.0	8.8	16.0	18.3	20.6	27.7	29.5	32.4	7 18.26	— 0.17	+11.93	+11.98	21 7 30.07	+ 0.06
	25	1 Pegasi	E.	46.1	48.8	50.5	57.0	59.0	1.1	7.8	9.4	12.2	15 59.10	— 0.38	+11.95	+11.97	21 16 10.69	— 0.03
	26	β Aquarii. . . .	E.	26.4	29.0	30.4	36.6	38.6	40.7	46.9	48.4	51.0	24 38.67	— 0.79	+11.95	+11.97	21 24 49.85	+ 0.05
	27	ε Pegasi	E.	30.6	33.3	34.8	40.9	43.0	45.0	51.4	52.9	55.5	37 43.04	— 0.54	+12.00	+11.97	21 37 54.47	— 0.02
	28	Moon II, N. . .	E.	47.6	50.5	52.1	58.8	1.1	3.4	10.0	11.6	14.5	46 1.07	— 1.02	. .	+11.97	21 46 12.02	—71.23
	29	θ Aquarii. . . .	E.	. .	. .	. .	. .	. .	. .	2.2	3.7	6.3	9 53.91	— 0.83	+12.00	+11.96	22 10 5.04	— 0.02
	30	Polaris	F.	. .	. .	. .	. .	. .	58.5	24.0	. .	. .	10 33.65	+28.85	. .	+11.90	1 11 14.40	— 3.71
	31	β Arietis	F.	9.0	11.7	13.3	19.8	22.0	24.1	30.6	32.2	34.9	47 21.96	— 0.37	+11.87	+11.89	1 47 33.48	+ 0.04
	32	a Arietis	F.	31.8	34.7	36.3	42.9	45.1	47.3	54.0	55.5	58.5	59 45.12	— 0.33	+11.94	+11.88	1 59 56.67	— 0.05
	33	Mercury II, N. .	F.	48.5	51.2	52.8	59.0	1.1	3.2	9.5	11.0	13.7	48 1.11	— 0.48	. .	+11.87	2 48 12.50	— 0.25
	34	a Ceti	F.	10.8	13.5	15.0	21.0	23.1	25.2	31.4	33.0	35.4	55 23.16	— 0.60	+11.83	+11.87	2 55 34.43	+ 0.06
	35	Venus I . . .	F.	. .	. .	35.0	37.1	39.3	41.5	43.7	. .	. .	28 39.32	— 0.40	. .	+11.86	3 28 50.78	+ 0.36
28	36	Polaris, S. P. . .	F.	. .	. .	. .	. .	37.0	11.0	46.0	. .	. .	11 36.40	—33.69	. .	+11.63	1 11 14.34	— 4.08
	37	τ^2 Capricorni. . .	F.	44.2	47.0	48.5	54.9	57.0	59.0	5.6	7.2	9.7	31 57.01	— 0.76	. .	+11.54	20 32 7.79	— 0.99
	38	17 Capricorni. . .	F.	21.8	24.7	26.2	32.8	35.0	37.3	43.9	45.6	48.2	38 35.06	— 0.87	. .	+11.54	20 38 45.73	— 1.01
	39	B. A. C. 7237 . .	F.	8.1	10.4	12.3	18.7	21.0	23.3	29.8	31.6	34.6	45 21.06	— 0.91	. .	+11.54	20 45 31.69	— 0.99
	40	19 Capricorni. . .	F.	11.0	13.9	15.5	21.9	24.0	26.2	32.6	34.2	37.0	47 24.03	— 0.90	. .	+11.54	20 47 34.67	— 0.93
	41	θ Capricorni. . .	F.	22.2	25.0	26.4	32.9	35.1	37.3	43.8	45.3	48.0	58 35.11	— 0.79	. .	+11.53	20 58 45.85	— 0.86
	42	ζ Cygni	F.	4.5	7.4	9.2	16.2	18.6	21.0	28.0	29.7	32.8	7 18.60	— 0.03	+11.48	+11.53	21 7 30.10	+ 0.06
	43	a Cephei	F.	53.5	59.0	2.2	15.4	19.9	24.2	37.3	40.5	45.8	15 19.76	+ 1.06	. .	+11.53	21 15 32.35	+ 0.05
	44	1 Pegasi	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	45	β Aquarii. . . .	F.	26.6	29.1	30.7	36.9	38.9	41.0	47.0	48.7	51.2	24 38.90	— 0.61	+11.57	+11.53	21 24 49.82	— 0.01
	46	β Cephei	F.	. .	. .	35.6	41.6	47.7	53.5	59.4	. .	. .	26 47.56	+ 1.77	. .	+11.52	21 27 0.85	— 0.05
	47	ξ Aquarii. . . .	F.	33.7	36.4	37.9	44.0	46.0	48.0	54.2	55.9	58.4	30 46.06	— 0.64	+11.40	+11.52	21 30 56.94	+ 0.14
	48	ε Pegasi	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	49	a Aquarii. . . .	F.	. .	. .	. .	. .	. .	6.0	10.0	11.6	14.2	59 1.90	— 0.53	+11.64	+11.52	21 59 12.89	— 0.09
	50	η Aquarii. . . .	F.	23.8	26.4	27.9	34.0	36.2	38.2	44.2	45.7	48.3	28 36.08	— 0.53	+11.44	+11.51	22 28 47.06	+ 0.10

4. Bisections at wires B_3 and D_1.
9. Bisections at wires C_5, D_1, and D_3.
46. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	299 28	23.3	21.0	15.0	20.8	34	292	. .	. .	. .	296	57.0	60 27 20.8	749	+ 1 41.2	111 35 23.2	
2	299 28	23.3	21.0	15.0	20.8	32	. .	963	. .	962	. .	57.0	60 27 0.5	. .	+ 1 41.2	111 35 2.9	
3	294 26	27.2	25.0	19.3	26.0	35	. .	434	. .	482	. .	57.0	65 29 43.2	. .	+ 2 5.5	116 38 9.9	+ 2.3
4	72 8	22.3	21.3	15.8	21.9	35	. .	650	. .	710	. .	57.0	287 47 42.6	751	− 2 57.3	338 51 6.5	+ 1.6
5	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . . .	751			
6	308 6	29.4	26.2	20.5	27.2	31	. .	900	. .	910	. .	57.0	51 48 50.2	. .	+ 1 13.1	102 56 24.5	+ 1.3
7	295 42	28.3	22.8	17.0	23.8	36	. .	940	. .	958	. .	57.0	64 14 4.7	. .	+ 1 58.8	115 22 24.7	+ 3.2
8	305 40	21.6	18.3	12.8	19.9	38	. .	665	. .	635	. .	57.0	54 16 26.1	. .	+ 1 19.9	105 24 7.2	+ 0.3
9	297 58	22.5	21.3	17.1	23.4	32	. .	. .	060	076	090	57.0	61 56 49.1	. .	+ 1 47.6	113 4 57.9	
10	303 20	20.2	18.0	12.7	20.2	39	. .	. .	. .	190	218	57.0	56 36 34.1	759	+ 1 27.3	107 44 22.6	+ 1.7
11	314 56	25.1	23.9	19.8	25.7	39	. .	. .	. .	350	360	57.0	45 0 42.4	. .	+ 57.6	96 8 1.2	+ 1.8
12	330 20	19.3	18.5	16.3	19.0	36	. .	420	. .	446	. .	57.0	29 35 52.3	760	+ 32.8	80 42 46.3	+ 1.5
13																	
14	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . . .	525			
15																	
16	0 2	5.0	2.8	28.2	2.0	31	. .	985	. .	970	. .	55.1	359 52 55.9	. .	− 0.1	50 59 17.0	+ 0.3
17	316 12	6.3	4.7	0.7	4.3	36	. .	560	. .	554	. .	55.1	43 44 8.0	. .	+ 54.4	91 51 23.6	− 0.1
18	52 24	4.7	4.2	28.4	4.2	37	115	. .	120	. .	100	55.1	307 32 15.3	. .	− 1 13.9	358 37 22.6	− 0.3
19																	
20	288 8	15.5	13.2	7.7	13.7	35	. .	230	. .	225	. .	55.1	71 47 55.9	. .	+ 2 51.0	122 57 8.1	−12.6
21	286 2	6.2	3.3	28.2	4.1	36	. .	752	. .	700	. .	55.1	73 54 9.3	. .	+ 3 14.2	125 3 41.7	−12.7
22	340 4	9 29.5	29.8	24.4	27.4	32	. .	120	. .	120	. .	55.1	19 50 53.8	. .	+ 20.5	70 57 35.5	+ 0.6
23	300 0	26.7	25.0	21.0	25.7	37	. .	110	. .	020	. .	55.9	59 56 7.1	. .	+ 1 38.9	111 4 7.2	+ 3.0
24	350 44	8.0	6.2	1.3	4.6	34	. .	030	. .	034	. .	55.9	9 11 31.2	. .	+ 9.3	60 18 1.7	+ 0.2
25	340 18	7.0	5.7	1.2	4.2	35	. .	835	. .	815	. .	55.9	19 37 58.2	750	+ 20.5	70 44 39.9	+ 0.4
26	314 56	7.0	4.0	0.2	4.4	38	. .	725	. .	675	. .	55.9	45 0 41.6	. .	+ 57.4	96 8 0.2	+ 1.0
27	330 20	2.8	1.4	26.3	0.5	35	. .	610	. .	630	. .	55.9	29 35 50.7	. .	+ 32.6	80 42 44.5	− 0.1
28	301 44	9.1	6.7	2.8	6.8	45	300	195	955	672	500	55.9	58 14 34.8	. .	+ 1 32.5	109 22 28.5	
29	312 38	9.3	7.8	2.8	8.8	34	. .	. .	. .	952	968	55.9					
													47 17 47.3	. .	+ 1 2.2	98 25 10.7	+ 0.2
30	49 38	9 25.5	25.1	20.5	25.8	34	. .	. .	. .	120	112	55.2	310 17 21.0	672	− 1 6.3	1 22 35.9	− 1.4
31	341 14	9 29.0	27.1	23.1	27.1	38	. .	584	. .	580	. .	55.2	18 42 31.9	. .	+ 19.0	69 49 12.1	+ 0.3
32	343 54	9 28.1	25.0	21.6	25.0	37	. .	110	. .	116	. .	55.2	16 2 7.7	658	+ 16.1	67 8 45.0	+ 1.7
33	334 0	9 28.5	25.9	23.3	26.6	38	. .	218	. .	196	. .	55.2	25 56 25.6	. .	+ 27.2	77 3 14.0	
34	324 38	9 28.5	25.7	22.8	26.6	35	. .	964	. .	972	. .	55.2	35 17 50.9	636	+ 39.5	86 24 51.6	+ 0.4
35																	
36	52 24	7.0	6.0	2.0	5.5	36	. .	. .	886	932	. .	57.2	307 32 16.6	696	− 1 13.5	358 37 24.3	+ 1.5
37	305 40	9.5	6.5	1.9	8.5	37	. .	400	. .	410	. .	57.2	54 16 25.7	. .	+ 1 20.5	105 24 7.4	+ 0.6
38	299 6	1.7	29.8	26.1	1.3	38	. .	. .	. .	306	302	57.2	60 50 32.4	. .	+ 1 43.7	111 58 37.3	+ 2.7
39	296 48	1.7	28.8	24.8	0.7	33	636	650	. .	. .	. .	57.2	63 7 20.2	. .	+ 1 54.0	114 15 35.4	+ 3.6
40	302 40	0.2	27.0	25.0	29.5	38	. .	320	. .	410	. .	57.2	57 16 31.7	. .	+ 1 30.1	108 24 23.0	+ 1.8
41	303 20	3.1	28.9	5.4	0.6	38	320	336	. .	. .	. .	57.2	56 36 35.3	806	− 1 27.9	107 44 24.4	+ 2.0
42	350 44	5.2	2.1	28.4	1.3	34	194	202	. .	. .	. .	57.2	9 11 32.0	. .	+ 9.4	60 18 2.6	+ 1.4
43	23 4	8.0	6.9	2.5	5.6	34	. .	808	. .	. .	. .	57.2	336 51 45.7	. .	− 24.8	27 57 42.1	− 0.3
44	340 18	1.0	28.5	22.5	27.3	36	. .	. .	. .	262	254	57.2	19 37 59.0	808	+ 20.7	70 44 40.9	+ 1.6
45	314 56	9 26.3	23.6	19.9	25.0	39	194	170	. .	. .	. .	57.2	45 0 40.2	. .	+ 58.1	96 7 59.5	+ 0.5
46	31 2	9.0	8.5	3.9	8.1	38	. .	. .	. .	136	142	57.2	328 54 38.0	. .	− 35.0	20 0 24.2	+ 0.1
47	312 38	9 25.5	21.9	19.2	24.2	37	. .	446	. .	450	. .	57.2	47 18 12.5	. .	+ 1 2.9	98 25 36.6	− 0.2
48	330 20	5.1	3.3	29.0	2.5	35	. .	. .	. .	318	320	57.2	29 35 49.6	808	+ 33.0	80 42 43.8	− 0.6
49	320 6	7.1	4.1	0.4	4.9	33	. .	. .	. .	326	322	57.2	39 49 20.5	. .	+ 48.4	90 56 30.1	+ 1.4
50	320 16	9 29.5	27.0	24.3	29.7	34	. .	294	. .	300	. .	57.2	39 39 29.0	. .	+ 48.0	90 46 38.2	+ 0.9

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
10	29.942	68.0	53.6
14	. .	. .	89.2
25	. .	. .	55.0
36	29.952	67.0	63.6

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
1	− 0.8	− 10.2	. .	− 11.0
2	− 0.8	+ 10.2	. .	+ 9.3
9	−52 47.4	+ 16 20.8	. .	− 36 26.6
28	−50 16.5	+ 16 11.4	. .	− 34 5.1
33	− 4.2	+ 3.6	. .	− 0.6

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
May 28	1	Moon II, N. . .	F.	51.4	54.0	55.5	2.0	4.2	6.3	12.9	14.4	17.2	43 4.21½	− 0.74	. .	+11.51	22 43 14.98	−68.52
	2	*a* Piscis Australis .	F.	10.0	13.0	14.8	21.8	24.1	26.6	33.6	35.4	38.4	50 24.19	− 1.03	+11.52	+11.51	22 50 34.67	+ 0.03
	3	*a* Pegasi	F.	59.3	2.0	3.6	9.8	11.9	14.0	20.4	22.0	24.5	58 11.94	− 0.29	+11.58	+11.51	22 58 23.16	− 0.04
30	4	*η* Virginis . . .	Ha.	59.1	1.7	3.2	9.3	11.4	13.4	19.5	20.9	23.5	13 11.33	− 0.75	+11.61	+11.60	12 13 22.18	− 0.03
	5	*β* Corvi	Ha.	17.0	19.8	21.3	28.0	30.3	32.5	39.2	40.9	43.7	27 30.30	− 1.14	+11.61	+11.59	12 27 40.75	− 0.06
	6	Polaris, S. P. . .	Ha.	. .	. .	33.0	8.0	42.0	15.0	54.0	. .	. .	11 42.40	−34.88	. .	+11.59	1 11 19.11	− 0.60
	7	*a* Virginis . . .	Ha.	4.9	7.7	9.2	15.4	17.5	19.6	25.8	27.3	29.9	18 17.48	− 0.92	+11.61	+11.59	13 18 28.15	− 0.04
	8	*ζ* Virginis . . .	Ha.	48.3	51.0	52.5	58.6	0.6	2.7	8.9	10.4	12.9	28 0.66	− 0.75	+11.52	+11.58	13 28 11.49	+ 0.06
	9	XIII, 24 . . .	S.	9.4	12.8	14.6	21.9	24.3	27.0	34.4	36.6	39.6	41 24.51	− 1.42	. .	+11.48	13 41 34.50	− 1.23
	10	*η* Bootis	S.	12.6	15.3	16.9	23.5	25.6	27.7	34.3	35.9	38.5	48 25.59	− 0.43	+11.52	+11.41	13 48 36.57	− 0.16
	11	*a* Draconis . . .	S.	. .	. .	36.3	41.1	46.0	50.7	55.6	. .	. .	0 45.94	+ 1.15	. .	+11.41	14 0 58.50	+ 0.18
	12	*a* Bootis	S.	26.9	29.5	31.2	37.6	39.8	41.9	48.5	50.1	52.9	9 39.82	− 0.42	+11.35	+11.41	14 9 50.81	+ 0.06
	13	XIV, 15 . . .	S.	17.0	19.8	21.6	28.4	30.6	33.0	39.8	41.6	44.4	24 30.69	− 1.24	. .	+11.40	14 24 40.85	− 1.43
	14	XIV, 17 . . .	S.	11.6	15.1	17.2	24.7	27.3	30.0	38.2	40.0	43.2	31 27.48	− 1.53	. .	+11.40	14 31 37.35	− 1.62
	15	ε^1 Bootis . . .	S.	0.3	3.3	5.0	. .	. .	. .	23.4	25.0	28.0	39 14.17	− 0.27	. .	+11.40	14 39 25.34	. .
	16	ε^2 Bootis . . .	S.	. .	. .	9.6	12.0	14.2	16.6	19.0	. .	. .	39 14.28	− 0.27	+11.37	+11.40	14 39 25.41	+ 0.01
	17	a^2 Libræ . . .	S.	26.4	29.0	30.5	36.9	39.0	41.2	47.5	49.0	51.9	43 39.04	− 1.01	+11.39	+11.40	14 43 49.43	0.00
	18	XIV, 28 . . .	S.	45.3	48.1	49.8	56.3	58.5	0.7	7.6	9.0	11.8	52 58.57	− 1.14	. .	+11.40	14 53 8.83	− 1.49
	19	XIV, 31 . . .	S.	2.4	5.3	7.0	14.0	16.2	18.4	25.6	27.1	30.2	1 16.24	− 1.25	. .	+11.40	15 1 26.39	− 1.57
	20	ρ^1 Libræ	S.	40.8	43.5	45.0	51.5	53.4	55.6	1.9	3.6	6.2	20 53.50	− 1.03	. .	+11.39	15 21 3.86	− 1.53
	21	B. A. C. 5155 . .	S.	7.9	11.2	13.2	21.0	23.7	26.4	34.5	36.4	39.5	30 23.76	+ 0.02	. .	+11.39	15 30 35.17	− 1.89
	22	B. A. C. 5187 . .	S.	28.3	31.1	32.6	39.1	41.3	43.5	50.0	51.7	54.5	35 41.34	− 0.41	. .	+11.39	15 35 52.32	− 1.60
	23	B. A. C. 5249 . .	S.	. .	. .	29.6	34.0	38.6	43.1	52.1	55.6	1.0	44 34.10	+ 0.99	. .	+11.39	15 44 46.48	− 3.11
	24	B. A. C. 5310 . .	S.	49.1	52.6	54.5	2.0	4.6	7.2	14.9	16.8	20.0	54 4.63	− 0.06	. .	+11.39	15 54 15.96	− 1.87
	25	B. A. C. 5338 . .	S.	21.6	25.4	27.6	36.5	39.4	42.4	51.3	53.5	57.1	58 39.42	+ 0.20	. .	+11.39	15 58 51.01	− 2.13
	26	ν^1 Scorpii, (N. *). .	S.	10.5	13.2	14.9	21.5	23.7	25.9	32.3	33.9	36.6	4 23.61	− 1.08	. .	+11.39	16 4 33.92	− 1.63
	27	B. A. C. 5525 . .	S.	23.4	25.0	29.3	31.5	33.7	36.0	38.2	42.7	44.3	24 33.79	− 0.38	. .	+11.39	16 24 44.80	− 1.66
	28	B. A. C. 5574 . .	S.	40.2	44.6	47.2	. .	. .	. .	. .	16.8	21.0	33 0.66	+ 0.46	. .	+11.39	16 33 12.51	− 2.43
	29	B. A. C. 5575[1]. .	S.	. .	. .	56.2	59.8	. .	6.6	10.0	. .	. .	33 3.15	+ 0.46	. .	+11.39	16 33 15.00	− 2.43
	30	B. A. C. 5575[2]. .	S.	. .	. .	56.7	0.2	. .	7.0	10.3	. .	. .	33 3.55	+ 0.46	. .	+11.39	16 33 15.40	− 2.43
	31	B. A. C. 5652 . .	S.	53.0	56.0	57.8	4.9	7.2	9.5	16.7	18.5	21.4	44 7.22	− 0.21	. .	+11.38	16 44 18.39	− 1.75
	32	*κ* Ophiuchi . . .	S.	15.0	17.5	19.3	25.4	27.5	29.5	35.6	37.2	39.9	51 27.43	− 0.59	+11.35	+11.38	16 51 38.22	+ 0.07
	33	*d* Herculis . . .	S.	28.9	32.0	33.7	41.0	43.5	45.6	53.5	55.2	58.3	56 43.52	− 0.14	. .	+11.38	16 56 54.76	+ 0.25
	34	*a* Andromedæ . .	Ha.	21.0	24.0	25.9	32.7	34.9	37.2	44.2	46.0	49.0	1 34.99	− 0.26	+11.41	+11.40	0 1 46.13	+ 0.01
	35	*γ* Pegasi	Ha.	15.0	17.7	19.0	25.6	27.6	29.7	36.0	37.7	40.2	6 27.61	− 0.52	+11.41	+11.40	0 6 38.49	− 0.01
	36	Moon II, N. . .	Ha.	29.3	31.9	33.5	39.7	41.8	43.9	50.1	51.7	54.4	26 41.81	− 0.80	. .	+11.40	0 26 52.41	−64.83
	37	*β* Ceti	Ha.	46.2	49.0	50.5	57.0	59.2	1.3	7.7	9.3	12.0	36 59.13	− 1.07	+11.38	+11.39	0 37 9.45	+ 0.06
	38	Polaris	Ha.	. .	. .	44.0	10.0	36.0	59.0	25.0	. .	. .	10 34.80	+33.28	. .	+11.39	1 10 19.47	− 0.63
	39	*β* Arietis	E.	9.6	12.4	14.0	20.6	22.8	24.9	31.5	33.0	35.8	47 22.73	− 0.41	+11.22	+11.09	1 47 33.41	− 0.11
	40	*a* Arietis	E.	32.7	35.5	37.2	43.8	46.0	48.3	54.9	56.6	59.2	59 46.02	− 0.37	+11.16	+11.09	1 59 56.74	− 0.06
	41	*a* Ceti	E.	11.7	14.4	15.8	22.0	24.0	26.0	32.2	33.8	36.3	55 24.02	− 0.65	+11.08	+11.07	2 55 34.44	+ 0.01
	42	Mercury, C. . .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	43	*η* Tauri	E.	. .	. .	. .	. .	. .	. .	49.7	51.6	54.4	39 40.98	− 0.35	+10.89	+11.07	3 39 51.70	+ 0.18
	44	Venus II, S. . .	E.	25.6	28.4	30.0	36.5	38.6	40.8	47.4	49.0	51.6	43 38.66	− 0.43	. .	+11.07	3 43 49.30	− 0.36
	45	Venus N. . . .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
31	46	Sun I, N. . . .	E.	55.0	57.8	. .	. .	. .	. .	. .	18.8	21.7	34 8.32	− 0.38	. .	+11.06	4 34 19.00	. .
	47	Sun II, S. . . .	E.	. .	. .	. .	. .	. .	29.4	33.8	35.5	38.2	36 25.08	− 0.38	. .	+11.06	4 36 35.76	. .
	48	XII, 8	E.	56.4	59.8	1.7	9.5	12.0	14.6	22.3	24.2	27.5	33 12.00	− 1.24	. .	+10.97	12 33 21.73	− 0.86
	49	XII, 12	E.	27.2	30.4	32.1	39.4	41.8	44.2	51.6	53.5	56.5	39 41.86	− 1.14	. .	+10.97	12 39 51.69	− 0.89

1, 23. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. I.	II.	III.	IV.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscelan'us Corrections
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	306 38	9 24.2	21.2	18.2	23.0	35	386	. .	196	. .	096	57.2	53 17 37.3	. .	+ 1 17.5	104 25 16.0	
2	290 46	2.2	29.9	25.6	0.7	32	. .	220	. .	230	. .	57.2	69 8 59.0	. .	+ 2 30.7	120 17 50.9	— 0.2
3	335 34	7.5	5.5	1.7	4.5	37	. .	084	. .	084	. .	57.2	24 22 19.1	786	+ 26.2	75 29 6.5	+ 1.5
4	321 6	28.8	28.0	22.7	26.6	37	585	. .	. .	. .	670	55.6	38 50 17.4	657	+ 45.1	89 57 23.7	+ 1.0
5	298 22	26.0	25.1	20.0	24.9	34	440	. .	. .	. .	390	55.6	61 33 25.2	665	+ 1 43.1	112 41 29.5	+ 0.8
6																	
7	310 34	29.0	27.7	22.4	26.5	37	450	. .	. .	. .	465	55.6	49 22 14.6	683	+ 1 5.6	100 29 41.4	+ 1.6
8	321 6	0.0	28.6	23.2	27.6	34	. .	150	. .	145	. .	55.6	38 49 24.8	687	+ 45.3	89 56 31.3	+ 1.1
9	286 2	27.7	25.6	20.6	26.9	37	. .	320	. .	300	. .	55.6	73 54 11.0	. .	+ 3 12.8	125 3 45.0	—13.0
10	340 4	25.5	24.7	19.2	23.0	32	. .	420	. .	450	. .	55.6	19 50 54.4	691	+ 20.4	70 57 36.0	+ 1.5
11	26 0	22.5	21.8	17.0	20.8	31	730	787	. .	767	770	55.6	333 54 42.5	. .	— 27.6	25 0 36.1	+ 0.2
12	340 54	27.2	25.8	21.9	24.3	38	. .	058	. .	058	. .	55.6	19 2 22.4	694	+ 19.5	70 8 3.1	+ 2.2
13	293 56	28.0	26.0	20.9	27.8	36	. .	420	. .	410	. .	55.6	65 59 57.8	. .	+ 2 6.1	117 8 25.1	—10.4
14	282 6	28.1	26.4	21.2	28.0	37	. .	160	. .	140	. .	55.6	77 50 9.2	. .	+ 4 15.7	129 0 46.1	—11.8
15	348 38	24.9	23.1	17.9	22.7	30	. .	. .	. .	. .	980	55.6	11 16 31.3	. .	+ 11.3	62 23 3.8	
16	348 38	24.9	23.1	17.9	22.7	31	. .	176	. .	172	. .	55.6	11 16 34.2	. .	+ 11.3	62 23 6.7	+ 1.3
17	305 32	24.2	21.0	16.6	22.7	32	. .	850	. .	934	. .	55.6	54 22 59.2	699	+ 1 18.8	105 30 39.2	+ 2.1
18	298 42	26.3	24.0	19.7	26.0	30	. .	. .	. .	442	442	55.6	61 12 24.4	. .	+ 1 42.6	112 20 28.2	— 8.9
19	293 12	29.2	26.4	21.4	28.1	35	. .	. .	. .	. .	887	55.6	66 43 50.0	. .	+ 2 10.8	117 52 22.0	— 9.4
20	304 48	22.6	20.8	16.4	21.7	38	. .	. .	. .	760	935	55.6	55 8 29.8	706	+ 1 21.1	106 16 12.1	— 7.5
21	0 28	22.9	22.9	18.2	21.0	34	. .	810	. .	. .	. .	55.6	359 27 29.2	. .	— 0.5	50 33 49.9	— 0.8
22	341 8	23.0	21.8	17.3	20.4	38	. .	225	. .	205	. .	55.6	18 48 20.7	. .	+ 19.3	69 55 1.2	— 3.4
23	24 2	23.2	19.0	24.6	25.3	37	980	. .	. .	. .	975	55.6	335 54 19.5	. .	— 25.3	27 0 15.4	+ 0.7
24	358 2	25.6	25.5	19.1	24.0	33	. .	370	. .	430	. .	55.6	1 53 9.8	. .	+ 1.9	52 59 32.9	— 2.3
25	7 26	27.0	26.6	21.7	24.5	37	. .	450	. .	450	. .	55.6	352 30 13.5	. .	— 7.5	43 36 27.2	— 1.8
26	301 58	22.4	20.5	16.1	21.7	41	. .	500	. .	520	. .	55.6	57 59 10.6	710	+ 1 30.4	109 7 2.2	— 6.6
27	342 48	22.9	22.3	16.7	20.6	33	. .	. .	. .	. .	890	55.6	17 7 14.3	. .	+ 17.5	68 13 53.0	— 4.7
28	14 12	25.6	26.5	20.8	25.0	38	. .	. .	. .	. .	350	55.6	345 44 27.4	. .	— 14.4	36 50 34.2	— 3.5
29	14 12	25.6	26.5	20.8	25.0	32	651	681	. .	. .	. .	55.6	345 43 0.0	. .	— 14.4	36 49 6.8	— 3.5
30																	
31	351 14	28.2	27.2	21.5	26.3	38	. .	245	. .	265	. .	55.6	8 42 26.6	. .	+ 8.7	59 48 56.5	— 4.0
32																	
33	354 48	24.4	22.9	18.8	21.7	38	. .	180	. .	195	. .	55.6	5 8 21.7	716	+ 5.1	56 14 48.0	+ 2.0
34	349 26	29.0	26.5	23.7	25.1	38	940	. .	. .	. .	930	56.3	10 30 38.3	. .	+ 10.6	61 37 10.1	+ 2.0
35	335 30	9 23.0	18.3	16.2	18.1	33	. .	125	. .	090	. .	56.3	24 25 1.2	. .	+ 25.9	75 31 48.3	+ 1.9
36	318 10	9 19.0	17.6	14.9	18.3	43	810	. .	580	. .	290	56.3	41 47 40.2	750	+ 51.0	92 54 52.4	
37	302 22	24.4	19.5	17.5	21.6	34	615	. .	. .	. .	690	56.3	57 33 26.5	748	+ 1 29.5	108 41 17.2	+ 0.2
38	49 38	27.6	27.7	25.8	27.5	33	. .	940	050	975	. .	56.3	310 17 23.0	740	— 1 7.4	1 22 37.0	— 0.6
39	341 14	1.2	1.3	26.7	0.2	38	. .	260	. .	280	. .	54.4	18 42 29.5	. .	+ 19.3	69 49 10.0	— 1.5
40	343 54	29.8	0.3	26.2	29.8	36	. .	641	. .	675	. .	54.4	16 2 4.0	. .	+ 16.4	67 8 41.6	— 1.4
41	324 38	3.0	1.8	29.5	2.7	35	. .	480	. .	460	. .	54.4	35 17 48.3	715	+ 40.2	86 24 49.7	— 1.0
42	335 26	7.6	7.2	5.8	6.2	32	500	. .	. .	. .	435	54.4	24 29 7.4	. .	+ 25.8	75 35 54.4	
43																	
44	339 58	10.0	9.8	5.7	8.5	38	350	. .	. .	. .	230	54.4	19 58 38.6	. .	+ 20.5	71 5 20.3	
45	339 58	10.0	9.8	5.7	8.5	37	. .	582	. .	. .	540	54.4	19 58 27.3	. .	+ 20.5	71 5 9.0	
46	343 20	25.9	21.6	21.2	24.0	35	. .	000	. .	. .	. .	54.4	16 35 32.7	. .	+ 16.7	67 42 10.6	
47	342 50	17.5	17.3	12.7	16.0	41	. .	. .	. .	500	510	54.4	17 7 5.5	654	+ 17.2	68 13 43.9	
48	283 58	14.0	12.3	7.8	11.2	40	. .	834	. .	910	. .	53.7	75 59 20.0	. .	+ 3 42.8	127 9 24.0	—15.0
49	288 28	13.0	10.0	6.5	9.5	35	. .	440	. .	498	. .	53.7	71 27 55.4	. .	+ 2 47.3	122 37 3.9	—13.9

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
3	30.132	61.5	56.0
41	. .	. .	68.0
47	. .	. .	74.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
1	—46 51.9	+ 16 0.9	. .	— 30 51.0
36	—38 2.2	+ 15 39.2	. .	— 22 23.0
42	— 3.7	. .	+ 0.4	— 3.3
44	— 1.8	— 5.7	+ 0.1	— 7.4
45	— 1.8	+ 5.7	. .	+ 3.9
46	— 2.4	+ 15 46.6	. .	+ 15 44.2
47	— 2.5	— 15 46.6	. .	— 15 49.1

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
May 31	1	XII, 15	E.	24.2	27.6	29.1	36.0	38.5	40.9	48.2	50.0	53.0	44 38.61	— 1.12	. .	+10.97	12 44 48.46	— 0.92
	2	12 Canum Venat.	E.	36.5	40.0	41.9	49.7	52.3	55.1	3.0	4.9	8.0	49 52.38	+ 0.08	+10.99	+10.97	12 50 3.43	— 0.02
	3	θ Virginis	E.	7.8	0.4	1.9	8.0	10.0	12.1	18.4	19.9	22.5	3 10.11	— 0.66	+10.96	+10.97	13 3 20.42	— 0.03
	4	Polaris, S. P.	E.	. .	. .	31.0	6.0	41.0	16.0	51.0	. .	. .	11 41.00	−32.43	. .	+10.97	1 11 19.54	— 0.94
	5	a Virginis	E.	5.3	8.0	9.6	15.7	18.0	20.0	26.2	27.8	30.5	18 17.90	— 0.75	+11.01	+10.97	13 18 28.12	— 0.06
	6	l^2 Virginis	E.	57.2	59.8	1.2	7.5	9.5	11.5	17.8	19.3	21.8	25 9.51	— 0.68	. .	+10.96	13 25 19.79	— 1.08
	7	ζ Virginis	E.	48.8	51.4	52.9	59.0	1.1	3.2	9.2	10.7	13.4	28 1.08	— 0.59	+10.93	+10.96	13 28 11.45	+ 0.03
	8	XIII, 20	E.	. .	. .	. .	. .	. .	. .	12.5	14.7	17.8	32 2.08	— 1.29	. .	+10.96	13 32 11.75	— 1.28
	9	XIII, 23	E.	19.0	22.5	24.5	32.0	34.5	37.0	45.0	46.9	50.3	40 34.63	— 1.26	. .	+10.96	13 40 44.33	— 1.32
	10	XIII, 26	E.	37.6	40.6	42.4	49.1	51.4	53.8	0.8	2.5	5.6	49 51.53	— 1.05	. .	+10.96	13 50 1.44	— 1.27
	11	XIII, 27	E.	0.1	2.9	4.6	11.2	13.5	15.8	22.7	24.3	27.4	53 13.61	— 1.00	. .	+10.96	13 53 23.57	— 1.27
	12	a Draconis	E.	. .	. .	36.6	41.5	46.2	51.2	56.2	. .	. .	0 46.34	+ 1.16	. .	+10.96	14 0 58.46	+ 0.17
	13	XIV, 1	E.	1.7	4.8	6.7	13.9	16.2	18.7	26.0	27.8	31.5	6 16.37	— 1.12	. .	+10.96	14 6 26.21	— 1.33
	14	a Bootis	E.	27.0	29.7	31.4	38.0	40.1	42.2	48.9	50.5	53.3	9 40.12	— 0.29	+10.92	+10.96	14 9 50.79	+ 0.04
	15	ϵ Bootis	E.	. .	. .	12.5	14.7	16.9	19.4	23.9	25.7	28.4	39 14.70	— 0.16	+10.84	+10.95	14 39 25.49	+ 0.09
	16	XIV, 23	E.	0.0	3.0	4.9	11.7	14.0	16.5	23.5	25.3	28.0	42 14.10	— 1.06	. .	+10.95	14 42 23.99	— 1.48
	17	Polaris	E.	6.0	54.0	1.0	48.0	14.0	39.0	. .	. .	. .	10 38.90	+30.03	. .	+10.84	1 11 19.77	— 0.89
	18	Moon II, N.	E.	24.8	27.5	29.0	35.4	37.5	39.5	45.7	47.3	49.9	15 37.40	— 0.58	. .	+10.84	1 15 47.68	−64.14
	19	β Arietis	E.	9.9	12.6	14.3	20.9	23.0	25.1	31.6	33.4	36.0	47 22.98	— 0.32	+10.90	+10.84	1 47 33.50	— 0.04
	20	a Arietis	E.	32.9	35.7	37.4	44.0	46.3	48.4	55.0	56.8	59.5	59 46.22	— 0.28	+10.89	+10.84	1 59 56.78	— 0.04
	21	a Ceti	F.	. .	. .	22.0	24.1	26.3	28.4	32.4	34.0	36.6	55 24.22	— 0.61	+10.86	+10.83	2 55 34.44	— 0.01
	22	Mercury II, N.	F.	56.9	59.6	1.2	7.7	9.7	11.7	18.1	19.7	22.3	9 9.66	— 0.44	. .	+10.82	3 9 20.04	— 0.24
	23	Mercury, S.	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	24	a Persei	F.	. .	. .	52.7	55.7	59.0	2.0	5.4	. .	. .	14 58.96	+ 0.26	. .	+10.82	3 15 10.04	+ 0.11
	25	δ Persei	F.	18.6	22.4	24.5	33.6	36.5	39.5	48.8	51.0	54.7	33 36.62	+ 0.20	. .	+10.82	3 33 47.64	+ 0.24
	26	η Tauri	F.	27.6	30.5	32.1	38.7	40.9	43.2	49.9	51.5	54.4	39 40.98	— 0.30	+10.85	+10.86	3 39 51.54	+ 0.01
	27	Venus I, N.	F.	26.6	29.2	30.8	. .	. .	. .	48.8	49.9	52.6	48 39.52	— 0.38	. .	+10.86	3 48 50.00	+ 0.36
	28	Venus II, S.	F.	. .	. .	36.0	38.0	40.3	42.4	44.6	. .	. .	48 40.26	— 0.38	. .	+10.86	3 48 50.74	— 0.38
June 1	29	Sun I, N.	F.	1.0	3.7	5.4	12.0	14.2	16.6	23.0	24.6	27.5	38 14.22	— 0.33	. .	+10.85	4 38 24.74	. .
	30	Sun II, S.	F.	17.7	20.5	22.2	28.7	30.9	33.2	39.9	41.5	44.3	40 30.99	— 0.33	. .	+10.85	4 40 41.51	. .
4	31	XII, 14	E.	22.0	25.0	26.6	34.0	36.5	39.0	46.5	48.4	51.3	43 36.59	— 1.18	. .	+10.17	12 43 45.58	— 0.88
	32	XII, 16	E.	35.8	38.8	40.7	48.1	50.4	53.0	0.5	2.4	5.5	44 50.58	— 1.21	. .	+10.17	12 44 59.54	— 0.89
	33	θ Virginis	E.	58.6	1.1	2.7	8.9	10.9	12.9	19.0	20.6	23.2	3 10.88	— 0.68	+10.19	+10.17	13 3 20.37	— 0.06
	34	Polaris, S. P.	E.	. .	. .	35.0	10.0	45.5	21.0	56.0	. .	. .	11 45.50	. .	. .	. .	. . . .	. .
	35	a Virginis	E.	6.2	8.8	10.4	16.7	18.7	20.7	27.1	28.5	31.2	18 18.70	— 0.77	+10.21	+10.17	13 18 28.10	— 0.06
	36	XIII, 12	E.	6.6	9.5	11.3	18.3	20.6	22.9	30.0	31.6	34.5	25 20.59	— 1.07	. .	+10.17	13 52 29.69	— 1.11
	37	ζ Virginis	E.	49.5	52.2	53.6	59.8	1.8	3.9	10.0	11.6	14.0	28 1.82	— 0.60	+10.19	+10.17	13 28 11.39	— 0.02
	38	XIII, 19	E.	. .	. .	20.0	22.4	24.7	27.5	29.9	. .	. .	31 24.90	— 1.16	. .	+10.17	13 31 33.91	— 1.18
	39	η Bootis	S.	13.6	16.3	18.0	24.4	26.7	28.8	35.2	37.0	39.7	48 26.63	— 0.31	+10.33	+10.33	13 48 36.65	— 0.05
	40	XIII, 26	E.	38.5	41.5	43.3	50.1	52.5	54.9	1.7	4.0	6.4	49 52.54	— 1.07	. .	+10.16	13 50 1.63	— 1.25
	41	XIII, 28	E.	8.0	11.0	13.0	20.5	23.0	25.7	33.6	35.5	38.6	53 23.21	— 1.26	. .	+10.16	13 53 32.11	— 1.36
	42	XIV, 1	E.	2.3	5.3	7.2	14.6	16.9	19.4	26.5	28.4	31.2	6 16.87	— 1.14	. .	+10.16	14 6 25.89	— 1.37
	43	a Bootis	S.	27.6	30.5	32.0	38.5	40.7	42.9	49.4	51.0	53.8	9 40.71	— 0.30	+10.32	+10.33	14 9 50.74	+ 0.01
	44	XIV, 4	E.	17.2	20.3	22.0	29.8	32.3	35.0	42.6	44.7	47.7	11 32.40	— 1.25	. .	+10.16	14 11 41.31	— 1.46
	45	XIV, 7	E.	5.0	7.8	9.6	16.7	19.0	21.4	28.4	30.1	33.0	16 19.00	— 1.09	. .	+10.16	14 16 28.07	— 1.40
	46	XIV, 13	E.	18.7	21.7	23.5	30.5	32.8	35.3	42.0	43.7	46.6	21 32.76	— 1.08	. .	+10.16	14 21 41.84	— 1.42
	47	XIV, 15	E.	18.0	20.9	22.6	29.4	31.8	34.1	41.0	42.6	45.6	24 31.78	— 1.05	. .	+10.16	14 24 40.89	— 1.42
	48	XIV, 16	E.	33.2	36.5	38.2	45.9	48.4	**50.9**	58.5	0.3	3.5	29 48.38	— 1.22	. .	+10.16	14 29 57.32	— 1.54
	49	XIV, 19	E.	51.8	54.6	56.5	3.6	5.9	8.3	15.5	17.0	20.0	34 5.91	— 1.12	. .	+10.16	14 34 14.95	— 1.48

4. Telescope micrometer reading increased five revolutions in reduction.
17. Bisections at wires B_1 and C_3.
40. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	289 44	3.5	1.3	27.5	29.8	36	. .	790	. .	860	. .	53.7	70 12 7.0	. .	+ 2 36.1	121 21 4.3	−13.5
2	0 2	3.1	2.8	29.1	0.0	32	. .	100	. .	130	. .	53.7	359 52 55.9	710	− 0.1	50 59 17.0	+ 0.8
3	316 12	9.8	8.6	5.0	7.0	36	. .	480	. .	540	. .	53.7	43 44 9.4	. .	+ 54.3	94 51 24.9	+ 1 3
4	52 24	6.5	6.8	2.7	4.8	32	080	. .	090	. .	085	53.7	307 32 15.8	. .	− 1 13.9	358 37 23.1	+ 0.7
5	310 34	8.2	5.7	2.0	5.2	36	. .	895	. .	875	. .	53.7	49 22 12.9	. .	+ 1 6.2	100 29 40.3	+ 0.5
6	315 28	13.0	11.3	7.0	10.2	37	. .	585	. .	620	. .	53.7	44 28 29.0	. .	+ 55.9	95 35 46.1	− 6.5
7	321 6	11.4	10.0	5.8	8.0	33	. .	405	. .	485	. .	53.7	38 49 23.6	. .	+ 45.8	89 56 30.6	+ 0.5
8	282 2	7.0	5.8	1.8	4.2	41	. .	. .	. .	282	250	53.7	77 55 19.2	. .	+ 4 19.7	129 6 0.1	−14.1
9	283 30	9.0	8.0	2.5	5.5	41	. .	205	. .	115	. .	53.7	76 27 19.3	. .	+ 3 52.0	127 37 32.5	−13.6
10	293 4	10.6	9.3	5.5	8.5	36	. .	310	. .	260	. .	53.7	66 52 6.7	. .	+ 2 13.0	118 0 40.9	−11.6
11	295 26	11.7	9.3	5.3	8.7	36	. .	530	. .	480	. .	53.7	64 30 10.4	. .	+ 1 59.6	115 38 31.2	−11.0
12	26 2	4.6	4.0	29.7	0.5	38	. .	890	. .	940	. .	53.7	333 54 41.8	. .	− 28.1	25 0 34.9	− 0.8
13	289 38	11.7	9.8	5.4	8.6	35	. .	260	. .	315	. .	53.7	70 17 51.8	. .	+ 2 39.0	121 26 52.0	−11.8
14	340 54	15.7	13.4	10.1	11.0	36	. .	900	. .	920	. .	53.7	19 2 20.7	. .	+ 19.8	70 9 1.7	+ 0.9
15	348 40	6.5	5.8	2.1	2.7	38	. .	. .	. .	282	200	53.7	11 16 33.0	. .	+ 11.5	62 23 5.7	+ 0.5
16	292 34	14.2	12.5	9.0	12.3	34	. .	220	. .	256	. .	53.7	67 21 38.8	748	+ 2 17.1	118 30 17.1	−10.2
17	49 38	9.0	9.4	8.2	9.8	33	000	. .	220	. .	. .	54.5	310 17 21.2	. .	− 1 6.3	1 22 36.1	− 1.6
18	324 2	8.6	4.6	3.5	5.2	35	470	. .	995	. .	465	54.5	35 53 44.6	725	+ 40.7	87 0 46.5	
19	341 14	6.2	4.1	3.2	4.0	38	. .	080	. .	160	. .	54.5	18 42 31.9	. .	+ 18.9	69 49 12.0	+ 0.6
20	343 54	7.0	4.8	3.2	5.3	36	. .	475	. .	425	. .	54.5	16 2 7.0	. .	+ 16.1	67 8 44.3	+ 1.4
21	324 38	9 29.7	27.5	25.3	0.0	35	. .	. .	. .	802	798	54.5	35 17 49.9	676	+ 39.4	86 24 50.5	− 0.1
22	335 58	9 29.9	27.8	25.0	28.2	38	274	. .	. .	. .	262	54.5	23 58 27.6	. .	+ 24.7	75 5 13.5	
23	335 58	9 29.9	27.8	25.0	28.2	38	. .	608	616	. .	. .	54.5	23 58 32.8	. .	+ 24.7	75 5 18.7	
24	10 26	3.7	4.8	1.7	5.1	34	. .	990	. .	980	. .	54.5	349 29 43.5	. .	− 10.3	40 35 54.4	+ 0.7
25	8 24	9 28.5	28.0	25.2	27.2	33	. .	774	. .	772	. .	54.5	351 31 18.2	. .	− 8.3	42 37 31.1	− 0.4
26	344 44	5.0	3.3	29.6	3.9	32	. .	184	. .	180	. .	54.5	15 10 59.3	. .	+ 15.0	66 17 35.5	+ 0.1
27	340 16	29.8	27.0	26.6	27.9	37	730	. .	. .	. .	756	54.3	19 40 19.5	. .	+ 19.8	70 47 0.5	
28	340 16	29.8	27.0	26.6	27.9	38	. .	454	. .	458	. .	54.3	19 40 30.3	650	+ 19.8	70 47 11.3	
29	343 28	9 23.3	24.0	20.0	23.1	35	108	068	. .	. .	. .	54.3	16 27 33.4	. .	+ 16.2	67 34 10.8	
30	342 56	9 17.7	18.7	14.8	16.8	33	. .	. .	. .	816	736	54.3	16 59 7.8	622	+ 16.8	68 5 45.8	
31	287 48	8.8	6.8	3.9	7.7	39	. .	905	. .	885	. .	55.8	72 9 2.6	690	+ 2 52.5	123 18 16.3	−14.2
32	286 42	5.4	3.0	0.0	4.7	35	. .	860	. .	880	. .	55.8	73 13 57.2	. .	+ 3 4.1	124 23 22.5	−14.4
33	316 12	5.4	3.0	0.5	3.6	36	. .	675	. .	660	. .	55.8	43 44 9.5	. .	+ 53.8	94 51 24.5	+ 1.1
34	52 24	2.6	1.2	28.3	1.8	37	070	. .	085	. .	030	55.8	307 32 13.2	. .	− 1 13.1	358 37 21.3	− 0.5
35	310 34	11.2	7.8	3.9	8.7	36	. .	630	. .	710	. .	55.8	49 22 14.3	. .	+ 1 5.5	100 29 41.0	+ 1.3
36	293 2	6.7	4.2	0.8	6.1	34	. .	370	. .	380	. .	55.8	66 53 35.4	. .	+ 2 11.1	118 2 7.7	−12.3
37	321 6	10.4	8.1	5.3	9.5	33	. .	362	. .	372	. .	55.8	38 49 24.0	. .	+ 45.3	89 56 30.5	+ 0.6
38	288 38	9.9	8.0	4.2	8.2	38	. .	262	. .	295	. .	55.8	71 18 38.7	700	+ 2 44.7	122 27 44.6	−13.2
39	340 4	25.6	23.6	19.6	23.6	32	. .	335	. .	380	. .	55.8	19 50 53.4	. .	+ 20.3	70 57 34.9	+ 1.1
40	293 4	7.3	4.3	1.0	5.0	36	. .	565	. .	575	. .	55.8	66 52 9.2	700	+ 2 11.0	118 0 41.4	−11.8
41	284 16	12.9	10.3	7.5	9.8	39	. .	782	. .	728	. .	55.8	75 4 3.8	. .	+ 3 37.2	126 51 2.2	−13.5
42																	
43	340 54	11.0	8.6	5.7	7.5	37	. .	020	. .	050	. .	55.8	19 2 20.4	. .	+ 19.4	70 9 1.0	+ 0.8
44	284 42	3.8	1.8	27.3	1.0	39	. .	795	. .	735	. .	55.8	75 14 54.8	702	+ 3 29.9	126 24 45.9	−12.8
45	292 0	5.8	4.3	2.0	5.8	40	. .	235	. .	160	. .	55.8	67 57 5.0	. .	+ 2 18.1	119 5 44.3	−11.3
46	292 32	10.4	8.2	6.0	9.8	35	. .	650	. .	682	. .	55.8	67 23 59.4	. .	+ 2 14.3	118 32 34.9	−11.1
47	293 56	7.3	5.2	2.1	5.8	35	. .	740	. .	675	. .	55.8	65 59 56.6	. .	+ 2 5.6	117 8 23.4	−10.7
48	286 8	10.4	7.3	4.6	10.1	36	. .	760	. .	842	. .	55.8	73 48 16.3	. .	+ 3 11.4	124 57 48.9	−11.9
49	290 42	8.0	6.0	3.3	7.4	37	. .	020	. .	038	. .	55.8	69 14 18.0	704	+ 2 27.5	120 23 6.7	−11.0

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
2	. .	. .	62.5
16	. .	. .	58.5
18	. .	. .	68.0
31	. .	. .	63.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
18	− 33 4.8	+ 15 29.4	. .	− 17 35.4
22	− 3.6	+ 2.6	. .	− 1.0
23	− 3.6	− 2.6	. .	− 6.2
27	− 1.7	+ 5.4	. .	+ 3.7
28	− 1.7	− 5.4	. .	− 7.1
29	− 2.5	+ 15 47.5	. .	+ 15 44.0
30	− 2.5	− 15 47.5	. .	− 15 50.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
June 4	1	ε Bootis	S.	1.3	4.2	6.0	13.0	15.2	17.5	24.5	26.3	29.2	39 15.24	− 0.16	+10.28	+10.33	14 39 25.41	+ 0.03
	2	a^2 Libræ	S.	27.2	29.9	31.2	37.8	39.9	41.9	48.4	50.0	52.6	43 39.88	− 0.85	+10.39	+10.33	14 43 49.36	− 0.07
	3	XIV, 25	E.	43.5	46.3	48.0	54.5	56.7	58.9	5.5	7.0	9.9	48 56.70	− 0.95	. .	+10.15	14 49 5.90	− 1.48
	4	XIV, 28	E.	46.4	49.3	50.9	57.5	59.7	1.9	8.6	10.3	13.0	52 59.73	− 0.96	. .	+10.15	14 53 8.92	− 1.50
	5	XIV, 31	E.	3.2	6.2	8.0	14.9	17.1	19.5	26.6	28.4	31.3	1 17.24	− 1.07	. .	+10.15	15 1 26.32	− 1.58
	6	β Libræ	E.	49.4	51.3	55.2	57.3	59.4	1.4	3.6	7.7	9.2	9 59.39	− 0.74	+10.10	+10.15	15 10 8.80	+ 0.05
	7	μ^1 Bootis	E.	15.5	18.7	20.7	28.4	31.0	33.6	41.3	43.3	46.5	19 31.00	+ 0.05	+10.12	+10.15	15 19 41.20	+ 0.02
6	8	12 Canum Venat.	E.	37.9	41.1	43.0	51.1	53.7	56.3	4.1	6.1	9.5	49 53.64	+ 0.01	+ 9.71	+ 9.73	12 50 3.38	+ 0.02
	9	θ Virginis	E.	59.2	1.6	3.2	9.4	11.5	13.5	19.6	21.2	23.7	3 11.43	− 0.61	+ 9.55	+ 9.73	13 3 20.55	+ 0.14
	10	Polaris, S. P.	Ha.	. .	. .	31.0	8.0	43.0	19.0	53.0	. .	. .	11 42.80	. .	. .	. .	. . . .	. .
	11	a Virginis	E.	6.6	9.2	10.8	17.0	19.0	21.0	27.4	29.0	31.4	18 19.04	− 0.70	+ 9.89	+ 9.73	13 18 28.07	− 0.08
	12	XIII, 10	Ha.	6.2	8.8	10.6	17.4	19.7	22.0	28.9	30.5	33.4	21 19.72	− 0.93	. .	+10.01	13 21 28.80	− 1.07
	13	ζ Virginis	E.	50.0	52.6	54.0	0.1	2.2	4.2	10.3	11.8	14.4	28 2.18	− 0.55	+ 9.77	+ 9.73	13 28 11.36	− 0.04
	14	XIII, 17	Ha.	49.6	52.4	54.1	1.0	3.5	5.9	12.9	14.5	17.6	31 3.50	− 0.97	. .	+10.01	13 31 12.54	− 1.16
	15	η Bootis	Ha.	14.0	16.8	18.3	24.8	26.9	29.1	35.7	37.2	39.9	48 26.97	− 0.31	+ 9.98	+10.00	13 48 36.66	− 0.03
	16	50 Cassiopeæ, S. P.	Ha.	. .	. .	35.9	29.4	23.0	16.3	9.5	. .	. .	52 22.82	− 2.52	. .	+10.00	1 52 30.30	+ 0.14
	17	a Draconis	Ha.	18.3	24.4	28.0	42.6	47.2	52.0	6.4	10.2	16.2	0 47.26	+ 0.91	. .	+10.00	14 0 58.17	+ 0.04
	18	a Bootis	Ha.	28.0	30.7	32.4	38.8	41.0	43.2	49.6	51.3	53.9	9 40.99	− 0.29	+10.02	+10.00	14 9 50.70	− 0.02
	19	XIV, 9	Ha.	9.6	12.5	14.2	20.8	23.0	25.3	32.0	33.5	36.6	17 23.06	− 0.89	. .	+10.00	14 17 32.17	− 1.36
	20	ε Bootis	Ha.	1.8	4.6	6.3	13.2	15.5	17.8	24.8	26.5	29.3	39 15.53	− 0.18	+10.00	+ 9.99	14 39 25.34	− 0.03
8	21	θ Virginis	E.	59.5	2.0	3.6	9.7	11.7	13.8	19.9	21.5	24.1	3 11.76	− 0.57	+ 9.17	+ 9.10	13 3 20.29	− 0.11
	22	Polaris, S. P.	E.	. .	. .	32.0	7.0	43.0	17.0	54.0	. .	. .	11 42.60	. .	. .	. .	. . . .	. .
	23	a Virginis	E.	7.0	9.8	11.4	17.4	19.6	21.7	27.9	29.5	32.2	18 19.61	− 0.64	+ 9.15	+ 9.10	13 18 28.07	− 0.07
	24	ζ Virginis	E.	50.4	53.0	54.7	0.7	2.8	4.8	11.0	12.5	15.0	28 2.77	− 0.51	+ 9.13	+ 9.10	13 28 11.36	− 0.03
	25	η Bootis	E.	14.8	17.5	19.1	25.6	27.9	30.0	36.5	38.0	40.8	48 27.80	− 0.28	+ 9.11	+ 9.09	13 48 36.61	− 0.07
	26	XIII, 27	E.	1.7	4.6	6.3	13.0	15.2	17.5	24.5	26.1	29.0	53 15.32	− 0.86	. .	+ 9.09	13 53 23.55	− 1.23
	27	a Bootis	E.	28.8	31.6	33.2	39.7	41.9	44.0	50.6	52.3	55.0	9 41.90	− 0.26	+ 9.07	+ 9.08	14 9 50.72	+ 0.01
	28	XIV, 8	E.	16.6	19.8	21.6	29.0	31.3	33.7	41.0	42.8	46.1	16 31.32	− 0.98	. .	+ 9.08	14 16 39.42	− 1.42
	29	XIV, 18	E.	9.8	12.9	14.6	21.5	23.7	26.0	33.0	34.6	37.5	32 23.73	− 0.85	. .	+ 9.08	14 32 31.96	− 1.44
	30	XIV, 19	E.	52.7	55.5	57.4	4.4	6.6	9.3	16.5	18.0	20.8	34 6.80	− 0.94	. .	+ 9.08	14 34 14.94	− 1.49
	31	XIV, 21	E.	28.5	31.6	33.5	40.9	43.3	46.0	53.0	55.0	58.4	39 43.36	− 1.01	. .	+ 9.08	14 39 51.43	− 1.57
	32	XIV, 23	E.	2.0	4.7	6.6	13.6	15.8	18.0	25.0	26.7	29.6	42 15.78	− 0.91	. .	+ 9.08	14 42 23.95	− 1.51
	33	XIV, 26	E.	6.6	9.5	11.2	18.0	20.2	22.3	29.3	30.9	33.8	49 20.20	− 0.86	. .	+ 9.07	14 49 20.41	− 1.51
	34	XIV, 28	E.	47.4	50.0	52.0	58.5	0.8	3.0	9.7	11.2	14.0	53 0.73	− 0.81	. .	+ 9.07	14 53 8.99	− 1.50
	35	XIV, 30	E.	36.6	39.8	41.7	49.1	51.8	54.3	1.4	3.8	7.5	58 51.78	− 1.08	. .	+ 9.07	14 58 59.77	− 1.72
	36	XV, 1	E.	59.5	2.4	8.9	11.2	13.5	15.9	18.4	24.8	27.8	1 13.60	− 0.94	. .	+ 9.07	15 1 21.73	− 1.62
	37	β Libræ	E.	. .	. .	56.4	58.4	0.5	2.5	4.6	. .	. .	10 0.48	− 0.62	+ 8.90	+ 9.07	15 10 8.93	+ 0.17
10	38	XIII, 2	Ha.	21.7	24.5	26.2	32.9	35.2	37.6	44.3	46.0	48.9	4 35.26	− 0.89	. .	+ 8.34	13 4 42.71	− 0.93
	39	Polaris, S. P.	Ha.	. .	. .	40.9	13.2	51.0	26.1	57.8	. .	. .	11 49.80	. .	. .	. .	. . . .	. .
	40	ζ Virginis	Ha.	51.2	53.8	55.3	1.4	3.5	5.6	11.7	13.2	15.8	28 3.50	− 0.51	+ 8.38	+ 8.32	13 28 11.31	− 0.06
	41	XIII, 17	Ha.	51.0	53.9	55.7	2.9	5.2	7.4	14.4	16.1	19.0	51 5.07	− 0.94	. .	+ 8.32	13 31 12.45	− 1.11
	42	XIII, 25	Ha.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	43	XIII, 27	Ha.	2.5	5.3	7.0	13.7	16.0	18.2	25.2	26.9	29.7	53 16.06	− 0.88	. .	+ 8.31	13 53 23.49	− 1.22
	44	XIV, 2	Ha.	44.0	46.9	48.9	56.3	58.6	1.0	8.5	10.5	13.5	8 58.69	− 0.86	. .	+ 8.31	14 9 6.14	− 1.30
	45	XIV, 4	Ha.	18.9	22.1	23.8	31.7	34.1	36.5	44.3	46.2	49.2	11 34.09	− 0.90	. .	+ 8.31	14 11 41.50	− 1.28
	46	XIV, 13	Ha.	20.7	23.4	25.3	32.2	34.5	36.8	43.8	45.6	48.4	21 34.52	− 0.93	. .	+ 8.30	14 21 41.89	− 1.40
	47	XIV, 17	Ha.	14.6	18.0	19.8	27.7	30.4	33.0	40.8	43.0	46.0	31 30.37	− 1.15	. .	+ 8.30	14 31 37.52	− 1.59
	48	XIV, 19	Ha.	53.5	56.2	58.2	5.3	7.8	10.0	17.2	18.8	21.8	34 7.64	− 0.97	. .	+ 8.30	14 34 14.97	− 1.49
	49	ε Bootis	Ha.	3.4	6.3	8.0	15.0	17.2	19.4	26.3	28.0	31.0	39 17.18	− 0.13	+ 8.28	+ 8.29	14 39 25.34	− 0.01

16. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	348 38	2.2	1.0	26.1	1.3	30	. .	430	. .	520	. .	55.8	11 16 31.7	. .	+ 11.2	62 23 4.1	− 0.4
2	305 32	2.3	0.3	25.0	0.7	32	. .	290	. .	330	. .	55.8	54 22 59.0	. .	+ 1 18.6	105 30 38.8	+ 1.8
3	299 36	10.2	8.6	5.2	8.5	35	. .	950	. .	040	. .	55.8	60 20 4.1	. .	+ 1 38.7	111 28 4.0	− 9.1
4	298 42	4.6	2.5	0.8	3.5	29	. .	725	. .	725	. .	55.8	61 12 22.6	. .	+ 1 42.3	112 20 26.1	− 9.1
5	293 12	11.2	8.8	6.0	10.5	34	. .	930	. .	010	. .	55.8	66 43 49.2	. .	+ 2 10.3	117 50 20.7	− 9.7
6	312 8	12.6	10.0	8.1	11.4	32	. .	610	. .	660	. .	55.8	47 47 14.8	. .	+ 1 2.2	98 54 38.2	+ 0.7
7	358 52	8.9	7.1	4.8	5.2	35	. .	763	. .	781	. .	55.8	1 3 59.4	712	+ 1.1	52 10 21.7	+ 1.3
8	0 2	8.3	6.3	4.0	6.4	31	. .	750	. .	780	. .	53.7	359 52 55.5	. .	− 0.1	50 59 16.6	+ 1.3
9	316 12	12.3	8.8	6.9	9.2	36	. .	468	. .	442	. .	53.7	43 44 10.3	. .	+ 53.1	94 51 24.6	+ 1.4
10	52 24	28.2	27.1	24.2	28.5	37	. .	480	455	495	. .	53.7	307 32 13.7	. .	− 1 12.1	358 37 22.8	+ 1.2
11	310 34	12.7	8.6	5.3	10.3	36	. .	745	. .	790	. .	53.7	49 22 15.0	637	+ 1 4.7	100 29 40.9	+ 1.3
12	294 20	1.8	0.0	27.5	0.0	35	. .	215	. .	065	. .	53.7	65 35 40.4	. .	+ 2 1.9	116 44 3.5	−12.1
13	321 6	12.3	10.4	8.1	11.3	33	. .	358	. .	368	. .	53.7	38 49 24.0	. .	+ 44.8	89 56 30.0	+ 0.2
14	291 54	7.5	5.0	1.5	4.9	39	. .	170	. .	205	. .	53.7	68 2 47.5	. .	+ 2 17.3	119 11 26.0	−12.5
15	340 4	4.5	3.6	29.5	1.5	31	. .	845	. .	805	. .	53.7	19 50 52.3	650	+ 20.1	70 57 33.6	0.0
16	69 12	4.1	3.5	0.4	3.2	35	770	. .	. .	. .	890	53.7	290 43 54.0	652	− 2 26.1	341 47 49.1	+ 1.8
17	26 2	6.2	5.4	1.1	3.0	38	. .	630	. .	640	. .	53.7	333 54 39.1	. .	− 27.3	25 0 33.0	− 1.5
18	340 54	9.0	7.3	3.8	5.6	37	. .	325	. .	335	. .	53.7	19 2 21.0	. .	+ 19.2	70 9 1.4	+ 1.8
19	296 50	3.0	0.4	26.4	1.0	34	. .	105	. .	225	. .	53.7	63 5 25.9	652	+ 1 49.3	114 13 36.4	−10.4
20	348 40	1.6	0.2	26.6	28.6	38	570	. .	. .	. .	605	53.7	11 16 33.4	. .	+ 11.1	62 23 5.7	+ 1.6
21	316 12	13.1	11.3	7.3	10.3	36	. .	508	. .	512	. .	51.8	43 44 10.4	. .	+ 52.5	94 51 24.1	+ 1.0
22	52 24	8.2	8.3	4.8	8.5	36	790	. .	765	. .	800	51.8	307 32 11.4	. .	− 1 11.3	358 37 21.3	− 0.2
23	310 34	10.8	8.8	4.3	8.3	37	. .	065	. .	005	. .	51.8	49 22 16.0	. .	+ 1 4.0	100 29 41.2	+ 1.7
24	321 6	15.0	13.3	10.0	13.5	33	. .	430	. .	428	. .	51.8	38 49 25.6	585	+ 44.2	89 56 31.0	+ 1.3
25	340 4	10.9	10.0	5.5	8.5	31	. .	585	. .	585	. .	51.8	19 50 53.2	. .	+ 19.9	70 57 34.3	+ 1.0
26	295 26	14.1	11.4	6.8	11.3	36	. .	900	. .	934	. .	51.8	64 30 17.0	. .	+ 1 54.9	115 38 33.1	−11.3
27	340 54	13.3	10.8	6.8	9.3	37	. .	165	. .	160	. .	51.8	19 2 20.1	. .	+ 19.0	70 9 0.3	+ 0.7
28	288 36	14.9	13.7	9.6	14.1	41	. .	110	. .	085	. .	51.8	71 21 23.3	. .	+ 2 41.8	122 30 26.3	−12.2
29	294 30	7.7	6.2	2.4	6.7	38	. .	070	. .	110	. .	51.8	65 26 29.8	. .	+ 2 0.2	116 34 51.2	−10.6
30	290 42	13.2	12.5	7.0	10.5	37	. .	330	. .	330	. .	51.8	69 14 23.2	. .	+ 2 24.5	120 23 8.9	−11.3
31	286 54	18.8	17.5	12.5	16.1	37	. .	575	. .	565	. .	51.8	73 2 32.2	. .	+ 2 58.8	124 11 52.2	−11.8
32	292 34	10.0	8.1	3.3	7.9	35	. .	015	. .	960	. .	51.8	67 21 43.7	. .	+ 2 11.6	118 30 16.5	−10.7
33	295 18	19.2	17.6	12.6	16.3	34	. .	750	. .	760	. .	51.8	64 37 49.2	. .	+ 1 56.0	115 46 6.4	−10.0
34	298 42	4.0	2.7	28.3	2.7	30	. .	520	. .	516	. .	51.8	61 12 29.8	. .	+ 1 40.2	112 20 31.2	− 9.2
35	283 40	7.4	5.1	0.0	3.3	40	. .	020	. .	110	. .	51.8	76 16 58.3	. .	+ 3 42.1	127 27 1.6	−11.5
36	290 54	13.0	11.6	5.9	9.8	38	. .	690	. .	680	. .	51.8	69 2 43.3	. .	+ 2 23.3	120 11 27.8	−10.3
37	312 8	13.8	11.5	7.0	10.7	32	. .	990	. .	930	. .	51.8	47 47 16.1	. .	+ 1 1.0	98 54 38.2	+ 1.0
38	295 12	8.3	6.1	29.9	4.8	36	. .	425	. .	360	. .	54.8	64 44 5.8	. .	+ 1 57.7	115 52 24.7	−12.1
39	52 24	4.0	3.5	29.3	3.0	37	. .	080	050	020	. .	54.8	307 32 13.7	652	− 1 12.6	358 37 22.3	+ 0.9
40	321 6	7.6	6.0	1.4	4.0	33	675	675	. .	. .	. .	54.8	38 49 24.2	. .	+ 45.0	89 56 30.4	+ 0.9
41	291 54	8.0	5.5	0.7	4.4	38	. .	980	. .	965	. .	54.8	68 2 45.3	. .	+ 2 18.1	119 11 24.6	−12.7
42	291 8	5.7	4.3	27.6	2.0	37	. .	875	. .	830	. .	54.8	68 48 25.9	668	+ 2 23.5	119 57 10.6	−12.5
43	295 26	6.0	4.0	28.5	2.9	36	. .	. .	. .	835	905	54.8	64 30 11.2	. .	+ 1 57.0	115 38 29.4	−11.4
44	286 42	5.6	3.5	28.0	3.5	41	. .	960	. .	910	. .	54.8	63 15 28.8	. .	+ 1 51.0	114 23 41.0	−10.8
45	284 40	2.0	0.4	24.5	29.8	32	. .	. .	. .	. .	125	54.8	65 14 54.4	677	+ 2 1.3	116 23 16.9	−11.2
46	292 32	7.0	6.1	1.5	5.0	35	. .	910	. .	030	. .	54.8	67 23 59.4	. .	+ 2 14.1	118 32 34.7	−11.4
47	282 6	6.6	5.1	29.5	4.2	36	. .	760	. .	700	. .	54.8	77 50 10.0	. .	+ 4 14.4	129 0 45.6	−13.1
48	290 42	8.2	6.4	0.8	6.0	37	. .	200	. .	240	. .	54.8	69 14 19.1	680	+ 2 27.4	120 23 7.7	−11.4
49	348 40	3.7	2.4	27.9	0.2	38	. .	. .	. .	285	295	54.8	11 16 31.6	. .	+ 11.2	62 23 4.0	+ 0.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
7	. .	. .	60.3
24	. .	. .	75.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
June 10	1	a^2 Libræ	Ha.	29.2	31.9	33.5	39.7	41.8	43.9	50.2	51.9	54.5	43 41.84	− 0.72	+ 8.30	+ 8.29	14 43 49.41	− 0.02
	2	XIV, 31	Ha.	5.5	8.2	10.0	16.9	19.3	21.7	28.4	30.0	32.9	1 19.21	− 0.92	. .	+ 8.29	15 1 26.58	− 1.59
	3	XV, 4	Ha.	2.8	5.8	7.6	15.0	17.6	20.0	27.2	29.1	32.1	11 17.47	− 1.03	. .	+ 8.28	15 11 24.72	− 1.71
	4	XV, 6	Ha.	54.4	57.9	59.7	7.7	10.3	12.9	20.4	22.5	25.7	13 10.17	− 1.12	. .	+ 8.28	15 13 17.33	− 1.79
	5	XV, 10	Ha.	34.6	37.9	39.8	47.3	49.5	52.1	59.7	1.4	4.5	22 49.64	− 1.06	. .	+ 8.28	15 22 56.86	− 1.79
	6	XV, 14	Ha.	49.7	52.8	54.6	1.9	4.4	6.9	14.0	15.8	18.8	28 4.32	− 1.01	. .	+ 8.27	15 28 11.58	− 1.77
	7	a Serpentis	Ha.	39.2	41.9	43.4	49.5	51.6	53.7	59.8	1.4	3.9	37 51.60	− 0.42	+ 8.24	+ 8.27	15 37 59.45	+ 0.05
	8	ε Serpentis	Ha.	7.7	10.3	11.7	18.0	20.0	22.0	28.1	29.8	32.2	44 19.98	− 0.45	+ 8.26	+ 8.27	15 44 27.80	+ 0.01
	9	a Ceti	S.	15.0	17.6	19.1	25.3	27.3	29.3	35.5	37.0	39.5	55 27.29	− 0.41	+ 7.81	+ 7.77	2 55 34.65	− 0.02
	10	Mercury I, S.	S.	. .	24.1	25.8	. .	. .	. .	43.2	44.8	47.8	16 34.54	− 0.19	. .	+ 7.75	4 16 42.10	+ 0.21
	11	Mercury II, N.	S.	. .	. .	30.6	32.7	35.1	37.3	39.5	. .	. .	16 35.04	− 0.19	. .	+ 7.75	4 16 42.60	− 0.29
11	12	Sun I, S.	S.	18.7	21.4	23.3	30.0	. .	34.5	41.0	42.8	45.5	19 32.15	− 0.14	. .	+ 7.71	5 19 39.72	. .
	13	Sun II, N.	S.	36.3	39.1	40.8	47.4	49.7	52.0	58.6	0.4	3.0	21 49.70	− 0.14	. .	+ 7.71	5 21 57.27	. .
	14	a^1 Geminorum	S.	2.5	5.5	7.2	. .	. .	. .	26.5	28.2	31.1	26 16.87	+ 0.01	. .	+ 7.65	7 26 24.53	. .
	15	a^2 Geminorum	S.	. .	. .	12.4	14.9	17.1	19.6	22.1	. .	. .	26 17.22	+ 0.01	+ 7.61	+ 7.65	7 26 24.88	+ 0.28
	16	XIV, 24	S.	34.3	37.3	39.0	46.4	48.8	51.3	58.7	0.6	3.4	47 48.87	− 0.96	. .	+ 7.46	14 47 55.37	− 1.59
	17	XIV, 31	S.	6.0	8.8	10.5	17.5	19.7	22.1	29.2	31.0	33.9	1 19.86	− 0.86	. .	+ 7.46	15 1 26.46	− 1.59
	18	β Libræ	S.	49.4	52.0	53.5	59.8	1.9	4.0	10.2	11.7	14.2	10 1.86	− 0.58	+ 7.48	+ 7.45	15 10 8.73	− 0.03
	19	28 Libræ	S.	20.3	23.0	24.7	31.1	33.2	35.4	41.7	43.4	46.1	13 33.21	− 0.70	. .	+ 7.45	15 13 39.96	− 1.55
	20	ρ^1 Libræ	S.	44.4	47.0	48.6	55.0	57.2	59.3	5.7	7.3	10.0	20 57.17	− 0.68	. .	+ 7.44	15 21 3.93	− 1.56
	21	γ Libræ	S.	4.1	6.9	8.5	14.8	17.0	19.0	25.3	27.0	29.5	28 16.90	− 0.65	. .	+ 7.44	15 28 23.69	− 1.58
	22	κ Libræ	S.	16.3	19.0	20.6	27.0	29.3	31.5	38.0	39.7	42.3	34 29.30	− 0.72	. .	+ 7.44	15 34 36.02	− 1.63
	23	ε Serpentis	S.	8.3	10.9	12.5	18.6	20.6	22.7	29.0	30.5	33.0	44 20.68	− 0.39	+ 7.50	+ 7.43	15 44 27.72	− 0.07
	24	θ Libræ	S.	14.5	17.3	18.9	25.0	27.2	29.5	35.9	37.9	40.0	46 27.36	− 0.68	. .	+ 7.43	15 46 34.11	− 1.65
	25	49 Libræ	S.	50.9	53.6	55.1	1.7	3.7	5.8	12.1	13.8	16.4	53 3.68	− 0.68	. .	+ 7.43	15 53 10.43	− 1.66
	26	β^1 Scorpii	S.	41.6	44.7	46.2	. .	. .	. .	3.5	5.0	7.9	57 54.82	− 0.72	+ 7.42	+ 7.43	15 58 1.53	+ 0.04
	27	β^2 Scorpii	S.	. .	. .	50.9	53.1	55.2	57.4	59.6	. .	. .	57 55.24	− 0.72	. .	+ 7.43	15 58 1.95	. .
	28	ν^1 Scorpii	S.	14.4	17.0	18.9	. .	. .	. .	36.2	37.7	40.3	4 27.42	− 0.72	. .	+ 7.42	16 4 34.12	− 1.72
	29	ν^2 Scorpii	S.	. .	. .	24.0	26.3	28.5	30.7	32.9	. .	. .	4 28.48	− 0.72	. .	+ 7.42	16 4 35.18	− 1.72
	30	Astræa	S.	49.8	52.5	54.0	0.2	2.4	4.5	10.9	12.4	15.1	42 2.42	− 0.65	. .	+ 7.40	16 42 9.17	. .
	31	B. A. C. 5895	S.	40.0	43.4	50.5	53.2	55.6	58.2	0.7	8.0	11.0	19 55.62	+ 0.10	. .	+ 7.39	17 20 3.11	− 1.96
	32	a Ophiuchi	S.	41.7	44.3	45.9	52.2	54.2	56.3	2.7	4.3	6.8	28 54.27	− 0.29	+ 7.34	+ 7.39	17 29 1.37	+ 0.08
	33	Pallas	S.	11.0	13.8	15.4	22.3	24.4	26.7	33.3	35.2	38.0	34 24.46	− 0.11	. .	+ 7.38	17 34 31.73	. .
	34	μ Herculis	S.	7.6	10.6	12.2	19.0	21.4	23.8	30.7	32.4	35.3	41 21.44	− 0.07	+ 7.41	+ 7.38	17 41 28.75	− 0.03
	35	μ^1 Sagittarii	S.	48.6	51.4	53.0	59.6	1.7	3.9	10.5	12.2	15.0	6 1.77	− 0.75	+ 7.34	+ 7.37	18 6 8.39	+ 0.03
	36	δ Ursæ Minoris	S.	. .	. .	30.5	5.5	40.0	15.5	48.5	. .	. .	13 40.00	+10.93	. .	+ 7.37	18 13 58.30	+ 0.69
	37	B. A. C. 6287	S.	22.5	25.2	27.0	33.4	35.6	37.7	44.3	46.0	48.7	22 35.60	− 0.72	. .	+ 7.36	18 22 42.24	− 1.81
	38	1 Aquilæ	S.	57.0	59.6	1.0	7.4	9.5	11.5	17.7	19.3	21.8	28 9.42	− 0.56	+ 7.35	+ 7.36	18 28 16.22	+ 0.08
	39	Anonymous	S.	29.8	32.6	34.2	41.0	43.2	45.5	52.4	54.2	56.9	36 43.31	− 0.82	. .	+ 7.36	18 36 49.85	− 1.28
	40	51 Cephei, S. P.	S.	42.5	49.0	17.0	53.0	28.5	. .	. .	. .	. .	39 27.90	−14.29	. .	+ 7.36	6 39 20.97	+ 0.07
	41	ξ^1 Sagittarii	S.	26.3	28.9	30.5	37.1	39.3	41.5	48.0	49.5	52.4	49 39.28	− 0.75	. .	+ 7.35	18 49 45.88	− 1.79
	42	a Ceti	E.	. .	. .	. .	. .	29.9	32.1	36.2	37.7	40.3	55 27.98	− 0.41	+ 7.14	+ 7.02	2 55 34.59	− 0.10
	43	a Persei	E.	44.0	48.0	50.2	. .	. .	. .	15.5	17.8	21.8	15 2.88	+ 0.22	. .	+ 7.01	3 15 10.11	− 0.14
	44	δ Persei	E.	22.4	26.2	28.5	37.6	40.8	43.5	52.6	54.9	58.8	33 40.59	+ 0.18	. .	+ 7.01	3 33 47.78	+ 0.09
	45	ζ Persei	E.	43.0	46.0	47.8	52.6	55.0	57.3	59.6	. .	. .	45 57.33	− 0.08	+ 7.08	+ 7.00	3 46 4.25	− 0.09
	46	Mercury II, N.	E.	19.2	22.0	23.6	30.3	32.4	34.6	41.4	43.0	45.7	24 32.47	− 0.21	. .	+ 6.99	4 24 39.25	− 0.19
	47	a Tauri	E.	. .	. .	22.7	24.8	27.0	29.1	31.2	. .	. .	28 26.96	− 0.26	+ 6.96	+ 6.99	4 28 33.69	+ 0.01
	48	Venus I, N.	E.	57.7	0.4	2.0	. .	. .	. .	19.7	21.4	24.2	45 10.90	− 0.20	. .	+ 6.98	4 45 17.68	+ 0.31
	49	Venus II, S.	E.	. .	. .	7.2	9.3	11.5	13.7	16.0	. .	. .	45 11.54	− 0.20	. .	+ 6.98	4 45 18.32	− 0.33

14. Bisections at wires B_1 and D_3.
40. Transits observed over set B and wires C_1 and C_3.

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Number.	Circle Division.	MICROSCOPE MICROMS. I.	II.	III.	IV.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	305 32	5.3	2.5	27.4	2.5	32	. .	160	. .	200	. .	54.8	54 22 58.3	. .	+ 1 18.4	105 30 37.9	+ 0.9
2	293 12	5.7	4.1	28.9	3.0	35	. .	540	. .	430	. .	54.8	66 43 50.0	686	+ 2 10.1	117 50 21.3	−10.1
3	287 32	4.7	2.8	28.1	1.7	38	770	740	. .	. .	. .	54.8	72 24 39.0	. .	+ 2 55.4	123 33 55.6	−10.6
4	283 20	2.4	0.8	25.4	29.4	33	. .	. .	. .	. .	168	54.8	76 35 10.5	. .	+ 3 51.2	127 45 22.9	−11.2
5	285 54	8.4	6.5	1.5	5.8	37	. .	725	. .	675	. .	54.8	74 2 26.6	. .	+ 3 14.0	125 12 1.8	−10.4
6	288 26	9.9	7.9	3.0	7.1	39	. .	205	. .	200	. .	54.8	71 30 49.1	685	+ 2 46.6	122 39 56.9	− 9.8
7	327 52	5.1	3.2	28.0	2.0	33	. .	520	. .	545	. .	54.8	32 3 19.4	. .	+ 35.2	83 10 15.8	+ 1.2
8	325 54	5.1	5.1	28.2	3.0	32	930	. .	. .	. .	950	54.8	34 1 11.1	682	+ 38.0	85 8 10.3	0.0
9	324 38	29.8	27.0	22.7	27.0	35	. .	. .	. .	773	753	54.0	35 17 47.2	647	+ 39.5	86 24 47.9	− 1.1
10	341 16	21.0	18.7	13.7	17.6	32	. .	. .	. .	340	. .	54.0	18 38 46.4	. .	+ 18.8	69 45 26.4	
11	341 16	21.0	18.7	13.7	17.6	31	. .	. .	. .	. .	970	54.0	18 38 41.1	. .	+ 18.8	69 45 21.1	
12	343 56	1.8	29.2	26.3	26.9	37	. .	030	. .	. .	. .	54.0	16 0 8.8	. .	+ 15.9	67 6 45.9	
13	344 28	6.3	5.4	0.0	2.3	38	. .	. .	. .	403	505	54.0	15 28 35.6	603	+ 15.3	66 35 12.1	
14	353 12	26.6	25.0	20.8	24.4	35	840	. .	. .	. .	830	54.0	6 43 30.6	558	+ 6.5	57 49 58.3	
15	353 12	26.6	25.0	20.8	24.4	34	. .	. .	. .	628	632	54.0	6 43 27.6	. .	+ 6.5	57 49 55.3	+ 1.3
16	287 46	9.7	8.2	2.3	6.3	39	. .	. .	. .	867	831	54.1	72 10 59.8	. .	+ 2 53.0	123 20 14.0	−11.6
17	293 12	5.5	2.0	27.7	2.9	35	. .	. .	. .	771	609	54.1	66 43 51.4	670	+ 2 10.0	117 52 22.6	−10.1
18	312 8	2.4	1.5	25.5	0.5	33	. .	360	. .	400	. .	54.1	47 47 14.1	. .	+ 1 2.0	98 54 37.3	+ 0.1
19	303 22	1.4	28.8	23.7	28.6	35	. .	970	. .	000	. .	54.1	56 33 52.2	. .	+ 1 25.1	107 41 38.5	− 7.9
20	304 48	3.4	1.1	25.5	0.2	38	. .	. .	. .	384	400	54.1	55 8 31.0	675	+ 1 20.7	106 16 12.9	− 7.5
21	306 42	0.1	28.4	22.3	27.4	37	. .	125	. .	145	. .	54.1	53 14 8.8	. .	+ 1 15.3	104 21 45.3	− 7.0
22	301 48	3.0	0.0	25.0	29.3	36	. .	305	. .	270	. .	54.1	58 7 58.1	. .	+ 1 30.4	109 15 49.7	− 7.7
23	325 54	3.8	3.0	27.5	0.4	33	. .	120	. .	130	. .	54.1	34 1 11.5	678	+ 38.0	85 8 10.7	+ 0.5
24	304 42	1.0	28.5	3.1	28.4	34	. .	. .	. .	613	. .	54.1	55 13 33.2	. .	+ 1 21.0	106 21 15.4	− 6.9
25	304 54	4.6	3.3	28.1	2.6	34	. .	975	. .	930	. .	54.1	55 1 40.4	. .	+ 1 20.4	106 9 22.0	− 6.7
26	301 36	4.3	2.4	27.4	1.9	34	016	. .	. .	. .	954	54.1	58 19 24.7	. .	+ 1 31.1	109 27 17.0	− 0.3
27	301 36	4.3	2.4	27.4	1.9	33	. .	120	. .	168	. .	54.1	58 19 12.0	. .	+ 1 31.1	109 27 4.3	
28	301 56	7.7	4.8	29.7	3.0	32	910	. .	. .	. .	980	54.1	57 59 11.1	. .	+ 1 30.0	109 7 2.3	− 6.8
29	301 56	7.7	4.8	29.7	3.0	35	. .	385	. .	375	. .	54.1	57 59 48.6	. .	+ 1 30.0	109 7 39.8	− 6.8
30	306 34	5.1	3.5	7.4	2.2	35	. .	490	. .	476	. .	54.1	53 21 51.0	. .	+ 1 15.8	104 29 28.0	− 4.1
31	358 6	8.0	7.9	1.4	4.9	34	. .	. .	. .	525	565	54.1	1 49 38.0	. .	+ 1.8	52 56 1.0	− 3.3
32	333 42	3.7	2.1	24.9	0.3	36	. .	126	. .	130	. .	54.1	26 13 56.7	. .	+ 27.9	77 20 45.8	+ 1.1
33	346 12	10.2	9.0	3.0	4.9	32	. .	765	. .	830	. .	54.1	13 43 12.2	695	+ 13.8	64 49 47.2	− 0.8
34	348 50	0.4	0.2	24.5	27.6	35	. .	338	. .	398	. .	54.1	11 5 43.1	. .	+ 11.1	62 12 15.4	+ 1.4
35	299 58	1.0	0.3	23.3	29.2	34	. .	270	. .	250	. .	54.1	59 57 26.0	700	+ 1 37.6	111 5 24.8	− 0.1
36	47 38	28.5	28.3	23.0	27.4	38	095	085	135	120	145	54.1	312 18 23.8	. .	− 1 2.2	3 23 42.8	+ 0.3
37	302 14	8.2	5.5	1.3	6.1	30	. .	730	. .	730	. .	54.1	57 40 38.7	701	+ 1 29.3	108 48 29.2	− 1.8
38	312 44	4.5	3.8	23.8	3.6	38	. .	. .	. .	. .	345	54.1	47 12 32.8	. .	+ 1 1.1	98 19 55.2	+ 0.8
39	295 34	4.9	2.6	26.9	2.6	33	. .	. .	. .	629	. .	54.1	64 21 19.6	. .	+ 1 57.6	115 29 38.4	− 0.7
40	53 46	8.9	8.0	3.0	7.2	. .	320	300	. .	. .	. .	54.1	306 9 19.8	. .	− 1 17.5	357 14 24.5	+ 1.2
41	300 14	7.2	5.0	29.9	4.5	33	. .	. .	. .	400	492	54.1	59 41 19.1	708	+ 1 36.6	110 49 16.9	− 0.4
42	324 38	6.8	5.5	2.2	5.1	35	. .	. .	. .	380	320	53.2	35 17 48.4	. .	+ 38.6	86 24 48.2	− 0.6
43	10 26	7.5	8.5	5.3	5.3	34	. .	795	. .	785	. .	53.2	349 29 42.0	588	− 10.1	40 35 53.1	− 1.5
44	8 24	7.8	7.5	6.0	4.8	33	. .	163	. .	195	. .	53.2	351 31 17.1	. .	− 8.1	42 37 30.2	− 2.2
45	352 32	6.1	4.5	2.0	3.0	34	. .	108	. .	136	. .	53.2	7 23 28.8	. .	+ 7.0	58 29 57.0	− 0.6
46	341 48	8.3	7.0	4.0	4.9	37	890	875	. .	845	830	53.2	18 8 28.4	. .	+ 17.7	69 15 7.3	
47	337 18	13.5	12.8	9.1	10.7	36	. .	780	. .	838	. .	53.2	22 38 17.6	. .	+ 22.6	73 45 1.4	+ 1.9
48	343 0	3.7	2.8	29.1	0.3	37	515	. .	. .	. .	495	53.2	16 56 18.4	. .	+ 16.5	68 2 56.1	
49	343 0	3.7	2.8	29.1	0.3	37	. .	902	. .	860	. .	53.2	16 56 24.1	. .	+ 16.5	68 3 1.8	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
8	29.920	72.5	66.0
42	30.074	74.0	
43	. .	. .	86.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
10	− 2.4	− 2.7	+ 0.1	− 5.0
11	− 2.4	+ 2.7	. .	+ 0.3
12	− 2.4	− 15 46.9	. .	− 15 49.3
13	− 2.4	+ 15 46.9	. .	+ 15 44.5
46	− 2.3	+ 2.8	. .	+ 0.5
48	− 1.5	+ 2.9	. .	+ 1.4
49	− 1.5	− 2.9	+ 0.1	− 4.3

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
June 12	1	Sun I, S.	E.	28.4	31.1	32.9	39.5	41.6	43.9	50.6	52.3	55.0	23 41.70	— 0.19	. .	+ 6.96	5 23 48.47	. .
	2	Sun II, N.	E.	46.0	48.8	50.5	57.0	59.4	1.5	8.4	9.9	12.7	25 59.36	— 0.19	. .	+ 6.96	5 26 6.13	. .
	3	α^2 Geminorum	E.	3.5	6.6	8.4	15.6	18.0	20.4	27.6	29.4	32.5	26 18.00	— 0.07	+ 6.91	+ 6.92	7 26 24.85	+ 0.25
	4	α Canis Minoris.	E.	16.4	18.9	20.4	26.5	28.6	30.7	36.9	38.3	40.8	32 28.61	— 0.38	+ 6.91	+ 6.92	7 32 35.15	— 0.15
	5	β Geminorum	E.	7.0	10.0	11.9	18.7	21.2	23.5	30.4	32.2	35.0	37 21.10	— 0.12	+ 7.00	+ 6.92	7 37 27.90	— 0.11
	6	Moon I, N.	E.	0.2	2.9	. .	10.9	13.0	15.2	. .	23.3	25.9	40 13.06	— 0.22	. .	+ 6.85	10 40 19.69	+63.70
	7	δ Leonis	E.	58.3	1.0	2.7	9.3	11.5	13.6	20.2	21.9	24.6	7 11.46	— 0.13	+ 6.86	+ 6.84	11 7 18.17	— 0.08
	8	δ Crateris	E.	38.0	40.6	42.2	48.4	50.5	52.6	59.0	0.7	3.0	12 50.56	— 0.56	+ 6.75	+ 6.84	11 12 56.84	+ 0.07
	9	β Leonis	E.	12.9	15.6	17.2	23.5	25.7	27.8	34.0	35.8	38.4	42 25.66	— 0.20	+ 6.76	+ 6.83	11 42 32.29	+ 0.05
	10	o Virginis	E.	22.8	25.5	27.0	33.2	35.3	37.4	43.6	45.2	47.7	58 35.30	— 0.28	+ 6.85	+ 6.82	11 58 41.84	— 0.05
	11	η Virginis	E.	3.5	6.0	7.6	13.6	15.7	17.8	23.9	25.4	28.0	13 15.72	— 0.38	+ 6.73	+ 6.81	12 13 22.15	+ 0.06
	12	κ Draconis	E.	. .	. .	41.6	47.8	53.8	0.4	6.6	. .	. .	27 54.04	+ 1.25	. .	+ 6.81	12 28 2.10	— 0.14
	13	XIII, 2	E.	23.0	26.0	27.8	34.4	36.6	39.0	45.9	47.5	50.5	4 36.74	— 0.72	. .	+ 6.79	13 4 42.81	— 0.91
	14	Polaris, S. P.	E.	. .	. .	35.0	10.0	46.0	22.0	57.0	. .	. .	11 46.00	. .	. .	. .	. . . .	. .
	15	XIII, 10	E.	9.0	12.0	13.7	20.4	22.8	25.2	32.0	33.9	36.6	21 22.84	— 0.74	. .	+ 6.78	13 21 28.88	— 1.00
	16	XIII, 16	E.	39.8	42.6	44.4	51.3	53.5	55.8	2.7	4.4	7.3	29 53.53	— 0.74	. .	+ 6.78	13 29 59.87	— 1.14
	17	XIII, 20	E.	. .	. .	0.7	3.3	5.9	8.7	11.4	. .	. .	32 6.00	— 0.96	. .	+ 6.78	13 32 11.82	— 1.17
	18	η Bootis	E.	17.0	19.7	21.4	27.8	30.0	32.2	38.7	40.4	43.0	48 30.02	— 0.16	+ 6.74	+ 6.77	13 48 36.63	— 0.02
	19	50 Cassiopeæ, S. P.	E.	. .	. .	38.8	32.0	25.6	19.2	12.9	. .	. .	52 25.70	— 1.86	. .	+ 6.77	1 52 30.61	+ 0.03
	20	XIV, 3	E.	55.6	58.4	0.0	6.9	9.2	11.5	18.3	20.0	23.0	10 9.21	— 0.73	. .	+ 6.77	14 10 15.25	— 1.31
	21	XIV, 10	E.	41.2	44.0	46.0	52.9	55.3	57.5	4.5	6.2	9.2	17 55.20	— 0.76	. .	+ 6.76	14 18 1.20	— 1.37
	22	XIV, 12	E.	14.3	17.6	19.6	27.2	29.9	32.6	40.3	42.2	45.4	20 29.90	— 0.94	. .	+ 6.76	14 20 35.72	— 1.50
	23	XIV, 18	E.	. .	. .	21.4	23.6	26.0	28.3	30.7	. .	. .	32 26.00	— 0.73	. .	+ 6.76	14 32 32.03	— 1.43
	24	ε Bootis	E.	4.6	7.5	9.4	16.3	18.5	20.9	28.0	29.5	32.4	39 18.57	— 0.05	+ 6.80	+ 6.76	14 39 25.28	— 0.06
	25	α^2 Libræ	E.	30.6	33.0	34.8	41.2	43.3	45.4	51.9	53.5	56.0	43 43.30	— 0.58	+ 6.70	+ 6.75	14 43 49.47	+ 0.04
	26	α Ceti	F.	16.1	18.8	20.7	26.4	28.4	30.5	36.6	38.2	40.8	55 28.50	— 0.44	+ 6.67	+ 6.60	2 55 34.66	— 0.05
	27	α Tauri	F.	. .	. .	. .	. .	. .	. .	35.8	37.5	40.0	28 27.31	— 0.30	+ 6.67	+ 6.57	4 28 33.58	— 0.12
	28	Mercury II, C.	F.	29.9	32.7	34.3	41.0	43.2	45.4	52.0	53.5	56.4	32 43.16	— 0.26	. .	+ 6.57	4 32 49.49	— 0.19
13	29	Sun I, N.	F.	37.8	40.6	42.3	49.0	51.2	53.4	0.2	1.8	4.6	27 51.21	— 0.21	. .	+ 6.55	5 27 57.55	. .
	30	Sun II, S.	F.	55.6	58.4	0.3	6.8	9.0	11.3	17.7	19.5	22.3	30 8.99	— 0.21	. .	+ 6.55	5 30 15.33	. .
	31	γ Geminorum	F.	. .	. .	. .	. .	. .	. .	20.5	22.0	24.6	30 11.90	— 0.30	+ 6.47	+ 6.53	6 30 18.13	+ 0.03
	32	α^2 Geminorum	F.	4.0	6.9	8.7	15.9	18.3	20.7	28.0	29.8	32.7	26 18.33	— 0.09	+ 6.61	+ 6.51	7 26 24.75	+ 0.14
	33	α Canis Minoris	F.	16.8	19.3	20.9	27.0	29.0	31.0	37.0	38.7	41.3	32 29.00	— 0.42	+ 6.56	+ 6.51	7 32 35.09	— 0.21
	34	β Geminorum	F.	7.5	10.6	12.2	19.1	21.6	23.8	30.7	32.5	35.4	37 21.49	— 0.14	+ 6.63	+ 6.50	7 37 27.85	— 0.16
	35	Moon I, N.	F.	19.2	22.0	23.5	29.8	32.0	34.1	40.4	42.0	44.6	27 31.96	— 0.26	. .	+ 6.42	11 27 38.12	+63.22
	36	η Virginis	F.	. .	. .	. .	. .	18.2	20.2	24.3	25.8	28.4	13 16.13	— 0.39	+ 6.32	+ 6.41	12 13 22.15	+ 0.07
	37	β Corvi	F.	21.7	24.5	26.2	32.9	35.0	37.1	44.0	45.5	48.3	27 35.02	— 0.70	+ 6.29	+ 6.40	12 27 40.72	+ 0.05
	38	12 Canum Venat.	F.	41.0	44.4	46.2	54.1	56.7	59.3	7.3	9.2	12.7	49 56.77	+ 0.17	+ 6.32	+ 6.39	12 50 3.33	+ 0.07
	39	θ Virginis	F.	2.2	4.7	6.2	12.4	14.4	16.5	22.7	24.2	26.8	3 14.46	— 0.45	+ 6.31	+ 6.39	13 3 20.40	+ 0.04
	40	Polaris, S. P.	F.	. .	. .	40.0	15.5	50.0	25.5	0.0	. .	. .	11 50.20	. .	. .	. .	. . . .	. .
	41	α Virginis	F.	9.7	12.5	14.0	20.2	22.3	24.3	30.6	32.0	34.8	18 22.27	— 0.52	+ 6.33	+ 6.38	13 18 28.13	+ 0.03
	42	ζ Virginis	F.	53.3	55.7	57.4	3.2	5.4	7.5	13.6	15.0	17.7	28 5.42	— 0.38	+ 6.31	+ 6.38	13 28 11.42	+ 0.07
	43	XII, 20	F.	50.5	53.7	55.7	3.6	6.3	8.8	16.8	18.9	22.0	32 6.26	— 1.01	. .	+ 6.38	13 32 11.63	— 1.17
	44	η Ursæ Majoris	F.	5.6	9.5	12.0	21.3	24.5	27.8	37.3	39.7	43.6	42 24.59	+ 0.42	. .	+ 6.37	13 42 31.38	+ 0.07
	45	η Bootis	F.	17.4	20.2	21.7	28.2	30.4	32.5	39.0	40.5	43.3	48 30.36	— 0.14	+ 6.37	+ 6.37	13 48 36.59	— 0.05
	46	XIV, 2	F.	45.6	48.5	50.5	58.1	0.4	3.0	10.5	12.3	15.4	9 0.48	— 0.91	. .	+ 6.37	14 9 5.94	— 1.38
	47	XIV, 6	F.	27.4	30.7	32.6	40.2	42.6	45.3	53.2	55.0	58.3	12 42.81	— 0.97	. .	+ 6.36	14 12 48.20	— 1.43
	48	XIV, 11	F.	34.6	37.8	39.7	47.7	50.4	53.0	0.9	2.9	6.3	18 50.37	— 1.01	. .	+ 6.36	14 18 55.72	— 1.50
	49	XIV, 20	F.	27.5	30.2	32.4	39.6	42.0	44.4	51.4	53.0	56.0	38 41.83	— 0.84	. .	+ 6.35	14 38 47.34	— 1.51
	50	XIV, 21	F.	31.0	34.0	36.0	43.6	45.9	48.3	55.7	57.7	0.8	39 45.89	— 0.90	. .	+ 6.35	14 39 51.34	— 1.55

19, 35, 50. Bisections at sets B and D.
49. Bisections at wires II and III.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETERS. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellanu's Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	344 0	9 29.5	27.7	23.5	26.3	38	510	580	. .	. .	. .	53.2	15 56 29.6	. .	+ 15.4	67 3 6.2	
2	344 32	4.5	2.8	27.8	1.7	39	. .	. .	. .	800	818	53.2	15 24 54.0	495	+ 14.9	66 31 30.1	
3	353 12	5.7	4.5	3.2	4.5	33	. .	960	. .	930	. .	53.2	6 43 26.6	. .	+ 6.3	57 49 54.1	0.0
4	326 36	8.2	7.7	5.0	7.9	35	. .	910	. .	918	. .	53.2	33 19 59.4	. .	+ 35.2	84 26 55.8	+ 0.2
5	349 22	3.9	2.6	0.0	2.1	34	. .	050	. .	040	. .	53.2	10 33 25.8	500	+ 10.0	61 39 57.0	+ 2.3
6	334 52	4.6	2.6	0.8	2.7	33	. .	012	356	682	. .	53.4	25 3 15.7	483	+ 21.9	76 9 58.8	
7	342 16	10.5	10.5	6.4	9.9	35	. .	085	. .	095	. .	53.4	17 39 49.1	. .	+ 17.1	68 46 27.4	+ 1.3
8	306 58	8.8	8.0	4.8	10.0	35	. .	028	. .	042	. .	53.4	52 57 46.7	. .	+ 1 11.2	104 5 19.1	+ 1.9
9	336 20	4.3	4.9	0.8	3.9	36	. .	060	. .	100	. .	53.4	23 35 58.5	. .	+ 23.6	74 42 43.3	+ 1.5
10	330 30	9.8	9.0	6.2	8.7	37	. .	888	. .	872	. .	53.4	29 26 31.1	510	+ 30.5	80 33 22.8	+ 1.8
11	321 6	14.0	12.5	10.3	14.0	36	. .	838	. .	854	. .	53.4	38 50 19.4	. .	+ 43.6	89 57 24.2	+ 2.3
12	31 32	7.5	8.0	3.5	6.5	37	. .	170	. .	210	. .	53.4	328 24 19.3	. .	− 33.4	19 30 7.1	0.0
13	295 12	12.5	9.7	5.7	9.8	36	. .	360	. .	375	. .	53.4	64 44 8.6	. .	+ 1 55.1	115 52 24.9	−12.1
14	52 24	11.3	11.0	6.8	9.8	36	550	. .	545	. .	590	53.4	307 32 11.8	. .	− 1 11.0	358 37 22.0	+ 0.7
15	294 20	10.5	7.5	4.2	8.7	35	. .	730	. .	810	. .	53.4	65 35 57.7	. .	+ 2 0.0	116 44 18.9	−12.2
16	294 4	12.0	9.0	4.4	8.5	34	. .	255	. .	280	. .	53.4	65 51 35.4	. .	+ 2 1.7	126 59 58.3	−14.7
17	282 2	8.9	7.0	0.7	5.8	41	. .	. .	. .	840	880	53.4	77 55 28.8	. .	+ 4 10.0	129 6 0.0	−15.2
18	340 4	8.6	7.5	3.0	4.8	31	. .	650	. .	750	. .	53.4	19 50 53.8	584	+ 19.9	70 57 34.8	+ 1.9
19	69 12	10.2	10.3	5.6	10.0	35	175	. .	. .	. .	195	53.4	290 43 49.9	. .	− 2 42.2	341 47 46.9	+ 0.1
20	294 42	12.7	9.4	4.7	9.6	34	. .	722	. .	750	. .	53.4	65 13 43.2	. .	+ 1 58.8	116 22 3.2	−11.3
21	292 46	16.4	13.8	9.8	13.7	37	. .	232	. .	240	. .	53.4	67 10 25.9	. .	+ 2 10.2	118 18 57.3	−11.5
22																	
23	294 30	9.7	7.5	3.5	6.0	38	. .	085	. .	060	. .	53.4	65 26 32.0	. .	+ 2 0.1	116 34 53.3	−10.8
24	348 40	9.0	7.6	3.7	5.1	38	. .	120	. .	140	. .	53.4	11 16 32.9	. .	+ 11.0	62 23 5.1	+ 2.0
25	305 32	12.2	8.7	3.8	8.7	32	. .	000	. .	010	. .	53.4	54 23 0.6	. .	+ 1 17.0	105 30 38.8	+ 1.8
26	324 38	5.7	2.4	27.6	2.2	35	. .	436	. .	412	. .	52.6	35 17 46.1	580	+ 38.8	86 24 46.1	− 2.5
27	337 18	4.0	1.3	0.0	2.0	37	. .	432	. .	428	. .	52.6	22 38 16.8	. .	+ 22.5	73 45 0.5	+ 1.1
28	342 16	2.6	0.1	27.0	29.2	33	. .	510	. .	478	. .	52.6	17 39 14.3	530	+ 17.2	68 45 52.7	
29	344 34	3.3	2.5	27.3	29.5	35	060	066	. .	. .	. .	52.6	15 21 39.4	520	+ 14.8	66 28 15.4	
30	344 2	1.5	0.2	26.7	27.9	33	. .	. .	. .	346	338	52.6	15 53 11.4	. .	+ 15.3	66 59 47.9	
31	337 32	9 29.9	26.5	24.4	26.7	32	. .	230	. .	240	. .	52.6	22 22 52.1	. .	+ 22.1	73 29 35.4	+ 1.0
32	353 12	2.1	0.3	28.8	29.4	34	. .	. .	. .	330	322	52.6	6 43 27.6	. .	+ 6.3	57 49 55.1	+ 1.0
33	326 36	3.6	0.2	29.8	2.1	36	. .	298	. .	306	. .	52.6	33 19 59.6	. .	+ 35.2	84 26 55.4	− 0.1
34	349 22	9.2	6.1	5.3	5.7	33	. .	778	. .	770	. .	52.6	10 33 25.5	486	+ 10.0	61 39 56.7	+ 2.0
35	329 54	1.8	27.1	24.7	0.2	29	038	. .	190	. .	390	51.5	30 0 6.1	496	+ 31.2	81 6 58.5	
36	321 6	9.1	5.8	3.2	9.7	37	. .	. .	. .	258	250	51.5	38 50 18.0	510	+ 43.6	89 57 22.8	+ 0.9
37	298 22	9.7	6.1	3.5	10.0	33	. .	990	. .	000	. .	51.5	61 33 28.2	. .	+ 1 39.8	112 41 29.2	+ 0.6
38	0 2	6.9	5.4	0.8	5.3	31	. .	976	. .	974	. .	51.5	359 52 54.9	. .	− 0.1	50 59 16.9	+ 1.4
39	316 12	13.5	10.2	6.2	9.5	36	540	550	. .	562	592	51.5	43 44 10.3	. .	+ 52.1	94 51 23.6	+ 0.7
40	52 24	5.2	4.3	0.2	2.9	36	992	975	000	010	004	51.5	307 31 10.1	546	− 1 10.9	358 37 20.4	− 0.8
41	310 34	11.2	7.5	2.5	8.8	37	. .	028	. .	028	. .	51.5	49 22 15.1	. .	+ 1 3.6	100 29 39.9	+ 0.5
42	321 6	11.1	8.1	3.5	7.9	33	. .	756	. .	780	. .	51.5	38 49 25.2	. .	+ 44.0	89 56 30.4	+ 1.1
43	282 2	8.2	5.4	29.2	4.8	42	. .	208	. .	196	. .	51.5	77 55 31.2	. .	+ 4 8.8	129 6 1.2	−15.2
44	11 0	8.6	8.0	3.8	6.3	37	. .	940	. .	942	. .	51.5	348 56 28.7	560	− 10.7	40 2 39.0	− 1.4
45	340 4	10.0	7.5	3.4	5.5	31	600	604	. .	630	642	53.5	19 50 53.3	564	+ 19.8	70 57 34.3	+ 1.6
46	286 40	9.1	5.7	0.7	7.0	34	. .	. .	. .	574	582	53.5	73 15 37.1	. .	+ 2 59.7	124 24 58.0	−13.1
47	283 48	10.9	7.8	2.4	6.7	35	. .	916	. .	884	. .	53.5	76 7 58.7	. .	+ 3 37.6	127 17 57.5	−13.7
48	281 50	10 5.5	2.5	26.5	1.2	41	. .	555	. .	106	. .	53.5	78 7 16.9	572	+ 4 13.4	129 17 51.5	−13.9
49	289 56	4.9	1.8	27.0	1.1	35	. .	890	950	. .	. .	53.5	69 59 53.7	. .	+ 2 29.5	121 8 44.4	−11.6
50	286 54	5.0	1.7	27.0	1.2	38	518	. .	. .	. .	530	53.5	73 2 33.8	. .	+ 2 57.8	124 11 52.8	−12.2

No.	Barom.	Att. Ther.	Ex. Ther.
	in.	″	″
2	30.044	78.0	90.2
5	30.000	80.0	93.5
6	29.940	81.0	92.0
10	. .	. .	88.5
18	. .	. .	78.2
29	29.994	79.0	90.5
35	29.844	82.0	85.9
49	29.834	80.0	77.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
1	— 2.4	− 15 48.0	. .	− 15 50.4
2	— 2.3	+ 15 48.0	. .	+ 15 45.7
6	−23 0.8	+ 14 57.4	. .	− 8 3.4
28	— 2.2	. .	+ 0.1	− 2.1
29	— 2.3	+ 15 46.2	. .	+ 15 43.9
30	— 2.4	− 15 46.2	. .	− 15 48.6
35	−27 29.8	+ 15 6.9	. .	− 12 22.9

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
June 13	1	α^2 Libræ	F.	31.0	33.6	35.2	41.6	43.6	45.8	52.0	53.8	56.4	43 43.67	− 0.59	+ 6.33	+ 6.35	14 43 49.43	+ 0.01
	2	Anonymous	F.	. .	. .	. .	10.6	12.4	14.7	19.4	21.3	24.2	48 10.45	− 0.73	. .	+ 6.35	14 48 16.07	− 1.49
	3	XIV, 29	F.	30.6	33.4	35.4	42.0	44.2	46.5	53.2	54.9	57.8	0 44.22	− 0.76	. .	+ 6.35	15 0 49.81	− 1.56
	4	o^2 Libræ	F.	36.7	39.3	40.9	47.4	49.4	51.4	57.9	59.6	2.0	15 49.40	− 0.58	. .	+ 6.34	15 15 55.16	− 1.54
	5	ζ^3 Libræ	F.	10.5	13.0	14.6	21.0	23.2	25.2	31.7	33.4	36.0	23 23.18	− 0.60	. .	+ 6.34	15 23 28.92	− 1.57
	6	ζ^4 Libræ	F.	24.5	27.3	28.9	35.3	37.4	39.5	45.9	47.5	50.2	25 37.39	− 0.61	. .	+ 6.34	15 25 43.12	− 1.58
	7	B. A. C. 5175	F.	40.7	44.2	46.5	55.1	57.9	0.7	9.2	11.5	14.8	33 57.84	+ 0.27	. .	+ 6.33	15 34 4.44	− 1.97
	8	ε Serpentis	F.	9.3	12.0	13.4	19.8	21.8	23.9	30.0	31.6	34.1	44 21.77	− 0.33	+ 6.36	+ 6.33	15 44 27.77	− 0.03
	9	B. A. C. 5279	F.	. .	. .	9.8	13.6	17.3	20.9	28.0	31.0	35.6	49 13.57	− 0.18	. .	+ 6.33	15 49 19.72	− 2.49
	10	B. A. C. 5310	F.	54.0	57.4	59.1	7.0	9.4	12.0	19.7	21.6	24.9	54 9.46	+ 0.13	. .	+ 6.33	15 54 15.92	− 1.88
	11	Lacaille 6716	F.	. .	. .	. .	. .	. .	. .	38.4	40.2	43.5	2 27.54	− 1.02	. .	+ 6.33	16 2 32.85	− 2.06
	12	ν^1 Scorpii, (N. *)	F.	15.4	18.3	19.8	26.3	28.4	30.5	37.3	38.7	41.4	4 28.46	− 0.65	. .	+ 6.33	16 4 34.14	− 1.73
	13	B. A. C. 5434	F.	31.2	34.2	35.9	42.5	44.8	47.0	53.6	55.3	58.0	10 44.72	− 0.08	. .	+ 6.32	16 10 50.96	− 1.73
	14	Anonymous	F.	. .	. .	. .	. .	. .	. .	30.1	31.7	34.3	12 21.44	− 0.64	. .	+ 6.32	16 12 27.12	− 1.75
	15	Anonymous	F.	54.4	57.4	59.4	. .	. .	. .	. .	21.3	24.2	15 9.32	− 0.91	. .	+ 6.32	16 15 14.73	− 1.98
	16	Anonymous	F.	. .	. .	9.7	12.0	14.7	17.0	19.4	. .	. .	15 14.56	− 0.91	. .	+ 6.32	16 15 19.97	− 1.98
	17	ζ Ophiuchi	F.	50.2	52.8	54.4	0.6	2.7	4.7	11.0	12.6	15.0	30 2.67	− 0.52	+ 6.30	+ 6.32	16 30 8.47	+ 0.02
17	18	XIV, 3	F.	58.0	1.0	2.8	9.6	11.8	14.2	21.0	22.9	25.7	10 11.89	− 1.02	. .	+ 4.33	14 10 15.20	− 1.28
	19	XIV, 5	F.	29.0	31.9	33.6	40.5	42.8	45.0	52.0	53.7	56.6	12 42.79	− 1.14	. .	+ 4.33	14 12 45.98	− 1.30
	20	XIV, 11	F.	36.9	40.2	41.9	50.0	52.6	55.2	3.1	5.3	8.6	18 52.64	− 1.44	. .	+ 4.33	14 18 55.53	− 1.47
	21	ε Bootis	F.	7.3	10.3	12.0	18.8	. .	23.4	30.4	32.1	35.0	39 21.17	− 0.14	+ 4.26	+ 4.32	14 39 25.35	+ 0.04
	22	XIV, 22	F.	50.2	53.6	55.5	3.4	5.8	8.4	16.0	18.0	21.1	42 5.78	− 1.38	. .	+ 4.32	14 42 8.72	− 1.59
	23	Moon I, N..	F.	. .	. .	. .	. .	45.0	47.2	51.5	53.1	55.8	45 42.98	− 0.87	. .	+ 4.32	14 45 46.43	+68.68
	24	XIV, 30	F.	41.4	44.5	51.5	54.2	56.9	59.3	1.9	9.0	12.2	58 56.77	− 1.39	. .	+ 4.32	14 58 59.70	− 1.67
	25	β Libræ	F.	52.9	55.4	56.9	3.1	5.2	7.2	13.5	15.0	17.7	10 5.21	− 0.78	+ 4.32	+ 4.32	15 10 8.75	0.00
	26	XV, 7	F.	43.4	46.4	48.1	55.0	57.5	59.8	6.9	8.6	11.6	14 57.48	− 1.16	. .	+ 4.32	15 15 0.64	− 1.65
	27	XV, 9	F.	50.3	53.6	55.4	2.9	5.4	7.9	15.5	17.4	20.7	19 5.46	− 1.35	. .	+ 4.31	15 19 8.42	− 1.79
	28	ζ^4 Libræ	F.	26.9	29.5	31.1	37.5	39.6	41.8	48.0	49.8	52.3	25 39.61	− 0.91	. .	+ 4.31	15 25 43.01	− 1.58
	29	B. A. C. 5155	F.	14.7	18.0	20.0	27.7	30.3	33.0	41.0	43.0	46.2	30 30.43	+ 0.13	. .	+ 4.31	15 30 34.87	− 1.83
	30	B. A. C. 5175	F.	. .	. .	54.2	57.0	59.9	2.8	5.6	. .	. .	34 59.90	+ 0.26	. .	+ 4.31	15 34 4.47	− 1.94
	31	B. A. C. 5279	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . .	. .
	32	B. A. C. 5302	F.	. .	. .	10.4	12.6	14.9	17.2	19.5	. .	. .	52 14.92	− 0.15	. .	+ 4.30	15 52 19.07	− 1.73
	33	B. A. C. 5338	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . .	. .
	34	ν^1 Scorpii, (N. *)	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . .	. .
	35	Anonymous	F.	10.7	13.6	15.2	21.5	23.7	25.9	32.4	34.0	36.7	12 23.74	− 0.95	. .	+ 4.30	16 12 27.09	− 1.76
	36	B. A. C. 5473	F.	50.1	53.0	54.8	2.0	4.3	6.7	14.0	15.6	18.7	17 4.36	− 0.06	. .	+ 4.30	16 17 8.60	− 1.83
	37	B. A. C. 5503	F.	23.4	27.6	30.0	40.0	43.5	46.9	56.7	59.2	3.4	21 43.41	+ 0.54	. .	+ 4.29	16 21 48.24	− 2.35
	38	B. A. C. 5703	F.	32.0	34.9	36.7	43.4	45.6	48.0	54.8	56.5	59.3	49 45.69	− 0.17	. .	+ 4.29	16 49 49.81	− 1.82
	39	B. A. C. 5752	F.	36.1	41.0	43.5	54.6	58.5	2.2	13.5	16.3	21.0	56 58.52	+ 0.76	. .	+ 4.28	16 57 3.56	− 2.64
	40	B. A. C. 5797	F.	. .	. .	56.0	0.4	4.0	8.0	11.9	. .	. .	5 4.06	+ 0.84	. .	+ 4.28	17 5 9.18	− 2.75
	41	a^1 Herculis	F.	34.0	36.7	38.2	44.5	46.5	48.7	55.0	56.5	59.3	8 46.60	− 0.39	+ 4.28	+ 4.28	17 8 50.49	+ 0.04
	42	B. A. C. 5863	F.	35.5	38.6	40.5	47.6	50.0	52.4	59.7	1.5	4.6	15 50.04	− 0.04	. .	+ 4.28	17 15 54.28	− 1.93
	43	B. A. C. 5962	F.	. .	. .	39.8	42.1	44.5	47.0	51.7	53.5	56.5	31 42.18	− 0.07	. .	+ 4.27	17 31 46.38	− 1.95
	44	O. Arg. N. 17415	F.	. .	. .	57.0	2.5	8.2	13.6	19.4	. .	. .	37 8.14	+ 1.64	. .	+ 4.27	17 37 14.05	− 3.70
	45	O. Arg. N. 17420	F.	. .	. .	. .	. .	22.3	27.8	38.8	43.0	50.2	37 16.69	+ 1.64	. .	+ 4.27	17 37 22.60	− 3.70
	46	γ^2 Sagittarii	F.	20.0	23.0	24.8	31.8	34.2	36.6	43.6	45.3	48.3	57 34.18	− 1.20	+ 4.30	+ 4.26	17 57 37.24	− 0.03
	47	B. A. C. 6150	F.	16.8	19.9	21.5	28.5	30.8	33.2	40.2	41.9	44.8	2 30.84	− 0.12	. .	+ 4.26	18 2 34.98	− 1.87
	48	B. A. C. 6185	F.	31.0	35.4	37.7	48.4	52.0	55.4	5.9	8.4	12.8	7 51.89	+ 0.63	. .	+ 4.26	18 7 56.78	− 2.47
	49	δ Ursæ Minoris	F.	. .	. .	. .	3.5	40.0	14.0	48.5	. .	. .	13 39.18	+14.02	. .	+ 4.26	18 13 57.46	− 0.23

18, 23, Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		″	° ′ ″	″
1	305 32	5.4	1.8	26.6	1.8	32	. .	504	. .	512	. .	53.5	54 23 1.5	. .	+ 1 16.5	105 30 39.2	+ 2.2
2	296 20	7.5	6.0	0.1	4.2	40	. .	. .	. .	020	040	53.5	63 36 59.9	. .	+ 1 50.3	114 45 11.4	—10.0
3	294 50	29.0	25.8	20.5	26.0	33	. .	192	. .	200	. .	53.5	65 5 5.9	586	+ 1 57.8	116 13 24.9	— 9.9
4	306 22	9.9	6.3	0.9	5.8	32	. .	348	. .	346	. .	53.5	53 33 3.3	. .	+ 1 14.4	104 40 38.9	— 7.3
5	304 54	5.6	2.4	27.8	0.7	38	558	568	. .	. .	. .	53.5	55 2 34.7	. .	+ 1 18.5	106 10 14.4	— 7.4
6	304 38	7.4	4.5	29.5	4.1	33	. .	995	. .	050	. .	53.5	55 17 27.2	. .	+ 1 19.3	106 25 7.7	— 7.4
7	5 4	3.2	1.9	25.3	28.3	37	. .	634	. .	634	. .	53.5	354 52 18.9	. .	— 4.9	45 58 35.2	+ 3.1
8	325 56	5.1	2.5	25.9	29.5	41	. .	. .	090	. .	. .	53.5	34 1 12.8	. .	+ 37.2	85 8 11.2	+ 1.3
9	17 14	6.5	6.0	0.7	3.3	34	. .	. .	. .	320	260	53.5	342 41 32.4	. .	— 17.2	33 47 36.4	+ 3.7
10	358 2	8.8	7.7	2.7	5.2	32	. .	508	. .	510	. .	53.5	1 53 6.5	. .	+ 1.8	52 59 29.5	+ 1.2
11	281 22	4.2	1.5	25.4	0.0	46	. .	700	. .	700	. .	53.5	78 36 38.0	. .	+ 4 25.6	129 47 24.8	— 9.2
12	301 56	5.1	1.8	25.6	1.8	33	. .	420	. .	432	. .	53.5	57 59 15.2	. .	+ 1 27.9	109 7 4.3	— 6.8
13	344 30	5.5	4.5	28.2	0.0	39	620	658	. .	. .	. .	53.5	15 26 52.1	. .	+ 15.2	66 33 28.5	— 1.2
14	302 30	4.5	29.5	24.1	29.6	36	. .	456	. .	446	. .	53.5	57 26 0.0	. .	+ 1 26.0	108 33 47.2	— 6.5
15	286 42	6.8	4.0	28.2	4.3	29	. .	. .	. .	878	. .	53.5	73 12 22.9	. .	+ 3 0.1	124 21 44.2	— 8.0
16	286 42	6.8	4.0	28.2	4.3	32	. .	. .	. .	. .	310	53.5	73 12 59.9	. .	+ 3 0.3	124 22 21.4	— 8.0
17	310 44	2.3	29.5	22.8	28.5	32	. .	726	. .	746	. .	53.5	49 11 1.9	596	+ 1 3.7	100 18 26.8	+ 2.6
18	294 42	3.7	0.2	25.4	0.7	34	954	. .	. .	. .	938	55.6	65 13 39.7	. .	+ 2 1.5	116 22 2.4	—11.4
19	293 36	9 29.0	26.5	20.7	26.7	33	. .	458	. .	460	. .	55.6	66 19 12.5	. .	+ 2 7.9	117 27 41.6	—11.6
20	281 50	9 21.9	25.6	20.0	24.2	41	. .	396	. .	368	. .	55.6	78 7 11.3	690	+ 4 21.4	129 17 53.9	—14.2
21	348 40	26.6	25.0	20.1	23.4	38	. .	. .	. .	620	610	55.6	11 16 30.1	. .	+ 11.3	62 23 2.6	+ 0.4
22	284 14	3.0	29.8	8.7	1.1	35	. .	. .	. .	920	910	55.6	75 41 57.3	. .	+ 3 37.8	126 51 56.3	—12.9
23	307 8	5.0	2.5	27.5	3.5	34	570	. .	754	. .	960	55.6	52 47 39.0	698	+ 1 14.2	103 55 14.4	
24	283 38	0.3	27.7	21.8	27.8	32	. .	. .	. .	. .	438	55.6	76 16 57.5	. .	+ 3 46.1	127 27 4.8	—12.4
25	312 8	5.3	2.0	27.2	2.5	33	. .	260	. .	248	. .	55.6	47 47 15.5	. .	+ 1 2.3	98 54 39.0	+ 2.0
26	292 12	2.5	29.4	24.4	0.2	37	. .	820	. .	828	. .	55.6	67 44 22.9	. .	+ 2 17.2	118 53 1.3	—10.2
27	284 48	3.0	29.3	23.6	29.6	41	. .	532	. .	540	. .	55.6	75 9 19.6	. .	+ 3 30.0	126 19 10.8	—11.3
28	304 38	3.0	29.2	24.3	0.2	33	. .	960	. .	054	. .	55.6	55 17 24.4	. .	+ 1 21.6	106 25 7.2	— 7.4
29	0 28	1.9	0.5	26.0	27.6	33	. .	956	. .	962	. .	55.6	359 27 23.9	. .	— 0.5	50 33 44.6	+ 3.4
30	5 4	9 28.4	26.8	22.1	25.0	37	. .	. .	. .	740	740	55.6	354 52 18.7	. .	— 5.1	45 58 34.8	+ 4.0
31	17 14	2.9	2.8	27.8	0.8	34	205	. .	. .	. .	. .	55.6	342 41 30.6	. .	— 17.7	33 47 34.1	+ 4.7
32	348 18	4.0	2.7	26.8	0.8	36	. .	. .	. .	. .	932	55.6	11 38 11.6	. .	+ 11.7	62 44 44.5	+ 0.7
33	7 26	4.8	3.0	27.1	0.1	36	644	650	. .	. .	. .	55.6	352 30 7.8	. .	— 7.6	43 36 21.4	+ 3.1
34	301 56	29.0	25.2	20.3	26.0	33	. .	340	. .	324	. .	55.6	57 59 10.0	. .	+ 1 30.4	109 7 1.6	— 6.8
35	302 30	0.1	25.6	20.8	27.5	36	. .	362	. .	374	. .	55.6	57 25 57.5	. .	+ 1 28.5	108 33 47.2	— 6.5
36	352 14	8.2	6.2	1.3	4.0	36	. .	192	. .	216	. .	55.6	7 42 4.2	. .	+ 7.7	58 48 33.1	+ 0.4
37	13 2	2.1	2.0	27.2	29.7	33	. .	774	. .	768	. .	55.6	346 53 22.4	710	— 13.2	37 59 30.4	+ 2.4
38	347 0	4.0	2.0	26.0	0.0	40	. .	710	. .	716	. .	55.6	12 57 9.0	. .	+ 13.0	64 3 43.2	— 1.2
39	17 54	25.2	23.8	18.0	22.7	33	. .	996	. .	998	. .	55.6	342 1 18.1	. .	— 18.4	33 7 20.9	+ 0.6
40	19 28	2.2	1.8	26.7	29.8	35	. .	. .	. .	422	420	55.6	340 27 47.2	. .	— 20.2	31 33 48.2	+ 0.1
41	335 36	25.5	23.4	18.2	21.2	40	. .	608	. .	596	. .	55.6	24 20 58.8	. .	+ 25.7	75 27 45.7	+ 1.2
42	353 40	2.1	0.2	25.2	29.0	34	. .	504	. .	478	. .	55.6	6 15 32.1	. .	+ 6.2	57 21 59.5	— 1.6
43	351 54	5.0	2.2	28.0	29.2	34	. .	. .	. .	706	710	55.6	8 1 37.4	. .	+ 8.0	59 8 6.6	— 2.2
44	29 30	1.0	0.0	24.5	28.5	39	. .	. .	. .	. .	730	55.6	330 26 53.6	726	— 32.2	21 32 42.6	— 1.8
45	29 30	1.0	0.0	24.5	28.5	40	. .	. .	. .	656	. .	55.6	330 27 6.8	. .	— 30.2	21 32 57.8	— 1.8
46	290 40	5.4	3.5	27.5	4.5	38	. .	400	. .	370	. .	55.6	69 16 35.1	. .	+ 2 29.1	120 25 25.4	+ 0.4
47	349 48	6.3	4.8	29.7	2.3	38	. .	930	. .	936	. .	55.6	10 8 44.5	. .	+ 10.2	61 15 15.9	— 3.3
48	15 16	5.5	4.0	28.3	2.8	32	. .	236	. .	240	. .	55.6	344 39 1.3	. .	— 15.6	35 45 6.9	— 4.2
49	47 38	2.1	2.7	27.5	1.4	37	. .	650	660	586	596	55.6	312 18 21.9	. .	— 1 2.5	3 23 40.6	+ 0.1

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
23	30.222	72.5	68.4

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
23	—46 45.4	+ 16 5.0	. .	— 30 40.4

For summary of the elements of reduction see page 3.

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
June 17	1	Anonymous . .	F.	. .	. .	11.7	14.2	16.6	19.0	21.5	. .	. .	19 16.60	— 1.23	. .	+ 4.26	18 19 19.63	— 1.87
	2	1 Aquilæ . . .	F.	. .	. .	10.9	12.8	14.8	16.9	51.0	52.6	55.2	28 12.80	— 0.77	+ 4.28	+ 4.25	18 28 16.28	+ 0.04
	3	α Lyræ	F.	18.2	21.4	23.4	31.4	34.0	36.6	44.4	46.5	49.7	32 33.96	+ 0.11	+ 4.21	+ 4.25	18 32 38.32	+ 0.06
	4	51 Cephei, S. P. . .	F.	. .	. .	0.5	16.5	36.0	. .	. .	. .	. .	39 35.27	—18.44	. .	+ 4.25	6 39 21.08	+ 0.44
18	5	α^1 Geminorum . .	S.	5.9	9.0	10.9	. .	. .	. .	30.2	31.9	35.0	26 20.48	— 0.10	. .	+ 4.11	7 26 24.49	. .
	6	α^2 Geminorum . .	S.	. .	. .	16.0	18.5	20.9	23.4	25.9	. .	. .	26 20.94	— 0.10	+ 4.03	+ 4.11	7 26 24.95	+ 0.32
	7	α Canis Minoris. .	S.	19.3	21.9	23.5	29.6	31.6	33.6	39.8	41.3	43.8	32 31.60	— 0.58	+ 4.13	+ 4.11	7 32 35.13	— 0.18
	8	β Geminorum . .	S.	. .	. .	19.4	21.7	24.0	26.3	28.6	. .	. .	37 24.00	— 0.18	+ 4.17	+ 4.11	7 37 27.93	— 0.09
	9	48 Cephei, S. P. . .	Ha.	. .	. .	24.8	15.2	5.8	57.3	47.8	. .	. .	4 6.18	— 4.24	. .	+ 4.07	3 4 6.81	+ 0.13
	10	β Libræ	Ha.	53.0	55.7	57.0	3.4	5.4	7.5	13.7	15.3	17.9	10 5.43	— 0.77	+ 4.09	+ 4.07	15 10 8.73	— 0.02
	11	μ^1 Bootis	Ha.	21.5	24.8	26.7	34.5	37.0	39.7	47.3	49.2	52.5	19 37.02	+ 0.09	+ 3.99	+ 4.07	15 19 41.18	+ 0.07
	12	ζ^3 Libræ	Ha.	13.0	15.7	17.3	23.7	25.8	27.9	34.2	35.8	38.4	23 25.76	— 0.89	. .	+ 4.06	15 23 28.93	— 1.54
	13	γ Libræ	Ha.	7.8	10.5	12.0	18.4	20.5	22.6	28.9	30.6	33.1	28 20.49	— 0.86	. .	+ 4.06	15 28 23.69	— 1.55
	14	Moon I, N. . .	Ha.	17.7	20.5	22.0	29.0	31.2	33.4	40.0	41.7	44.4	43 31.10	— 0.95	. .	+ 4.06	15 43 34.21	+71.77
	15	α Scorpii	Ha.	19.0	21.8	23.6	30.3	32.5	34.8	41.8	43.4	46.3	21 32.61	— 1.09	+ 4.11	+ 4.05	16 21 35.57	— 0.07
	16	B. A. C. 5560 . .	Ha.	10.0	15.4	18.4	31.1	35.2	39.6	52.2	55.4	0.8	31 35.34	+ 0.99	. .	+ 4.05	16 31 40.38	— 2.86
	17	B. A. C. 5574 . .	Ha.	47.3	51.7	54.3	. .	. .	. .	21.5	24.0	28.3	32 7.85	+ 0.58	. .	+ 4.05	16 32 12.48	— 2.40
	18	B. A. C. 5575 . .	Ha	. .	. .	3.6	7.0	10.4	13.9	17.3	. .	. .	33 10.44	+ 0.58	. .	+ 4.05	16 33 15.07	— 2.40
	19	B. A. C. 5703 . .	Ha.	32.3	35.2	36.9	43.7	45.9	48.2	54.9	56.6	59.5	49 45.91	— 0.17	. .	+ 4.04	16 49 49.78	— 1.83
	20	B. A. C. 5797 . .	Ha.	. .	. .	56.5	0.5	4.3	8.0	12.1	. .	. .	5 4.28	+ 0.83	. .	+ 4.04	17 5 9.15	— 2.74
	21	B. A. C. 5828 . .	Ha.	32.3	34.8	36.5	43.2	45.5	47.8	54.5	56.2	59.0	9 45.50	— 0.19	. .	+ 4.03	17 9 49.34	— 2.84
	22	B. A. C. 5871 . .	Ha.	24.5	28.2	30.3	39.2	42.1	45.0	54.0	56.2	59.9	16 42.16	+ 0.33	. .	+ 4.03	17 16 46.52	— 2.22
	23	B. A. C. 5962 . .	Ha.	28.4	31.3	33.0	40.2	42.5	44.9	52.0	53.8	56.8	32 42.54	— 0.07	. .	+ 4.03	17 32 46.50	— 1.90
	24	μ Herculis . . .	Ha.	11.1	14.1	15.8	22.7	25.0	27.4	34.2	36.0	38.7	41 25.00	— 0.13	+ 3.97	+ 4.02	17 41 28.89	+ 0.05
	25	B. A. C. 6079 . .	Ha.	54.4	59.0	2.0	13.0	17.0	20.7	32.0	34.7	39.4	51 16.91	+ 0.75	. .	+ 4.02	17 51 21.68	— 2.64
	26	γ^2 Sagittarii . .	Ha.	20.2	23.2	24.9	32.0	34.4	36.7	43.8	45.6	48.7	57 34.39	— 1.19	+ 4 10	+ 4.02	17 57 37.22	— 0.07
	27	B. A. C. 6150 . .	Ha.	. .	. .	. .	31.0	33.4	35.7	40.4	42.0	45.1	2 31.03	— 0.11	. .	+ 4.02	18 2 34.94	— 1.88
	28	δ Ursæ Minoris. .	Ha.	. .	. .	31.0	5.5	40.0	14.5	49.0	. .	. .	13 40.00	. .	. .	. .	. . . .	. .
	29	1 Aquilæ . . .	Ha.	. .	. .	9.0	11.0	13.1	15.1	17.2	. .	. .	28 13.08	— 0.75	+ 3.99	+ 4.01	18 28 16.34	+ 0.09
	30	α^1 Geminorum . .	S.	6.4	9.5	11.5	. .	. .	. .	30.7	32.4	35.3	26 20.97	— 0.09	. .	+ 3.67	7 26 24.55	. .
	31	α Canis Minoris. .	S.	19.9	22.4	24.0	30.0	32.1	34.2	40.3	41.9	44.4	32 32.13	— 0.56	+ 3.58	+ 3.67	7 32 35.24	— 0.07
	32	α Leonis	S.	17.3	19.9	21.4	27.7	29.9	31.9	38.2	39.8	42.4	1 29.83	— 0.45	+ 3.64	+ 3.62	10 1 33.00	— 0.06
	33	γ^1 Leonis	S.	38.2	40.9	42.7	. .	. .	. .	0.0	1.7	4.5	12 51.33	— 0.31	+ 3.63	+ 3.62	10 12 54.64	— 0.03
	34	γ^2 Leonis	S.	. .	. .	47.2	49.5	51.6	53.7	56.0	. .	. .	12 51.60	— 0.31	. .	+ 3.62	10 12 54.91	. .
19	35	δ Leonis	S.	1.7	4.3	6.0	12.6	14.8	17.0	23.4	25.1	27.9	7 14.76	— 0.30	+ 3.66	+ 3.61	11 7 18.17	— 0.01
	36	XIV, 14 . . .	S.	54.0	56.9	58.6	5.7	7.8	9.9	16.9	18.7	21.4	22 7.77	— 1.10	. .	+ 3.55	14 22 10.22	— 1.33
	37	α Libræ	S.	34.0	36.8	38.3	44.6	46.8	49.0	55.2	56.7	59.5	43 46.77	— 0.91	+ 3.53	+ 3.54	14 43 49.40	0.00
	38	μ^1 Bootis	S.	21.9	25 3	27.2	35.0	37.5	40.0	47.8	49.8	53.0	19 37.50	+ 0.04	+ 3.55	+ 3.53	15 19 41.07	— 0.03
	39	α Coronæ Borealis .	S.	0.7	3.5	5.0	12.2	14.4	16.7	23.6	25.3	28.2	29 14.40	— 0.19	+ 3.57	+ 3.53	15 29 17.74	— 0.04
	40	B. A. C. 5187 . .	S.	. .	. .	44.8	46.9	49.0	51.2	53.5	. .	. .	35 49.08	— 0.32	. .	+ 3.53	15 35 52.29	— 1.61
	41	θ Libræ	S.	18.6	21.2	23.0	29.3	31.4	33.6	39.9	41.6	44.2	46 31.42	— 0.92	. .	+ 3.53	15 46 34.03	— 1.66
	42	B. A. C. 5310 . .	S.	57.2	0.3	2.2	10.0	12.5	15.0	22.7	24.7	27.9	54 12.50	+ 0.02	. .	+ 3.52	15 54 16.04	— 1.85
	43	β^2 Scorpii	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	44	ν^1 Scorpii	S.	18.5	21.2	22.9	. .	. .	. .	40.1	41.9	44.6	4 31.53	— 0.97	. .	+ 3.52	16 4 34.08	— 1.74
	45	ν^2 Scorpii	S.	. .	. .	28.4	30.4	32.8	34.9	37.0	. .	. .	4 32.70	— 0.97	. .	+ 3.52	16 4 35.25	— 1.74
	46	B. A. C. 5525 . .	S.	28.4	31.0	32.8	39.5	41.7	43.9	50.5	52.2	55.0	24 41.67	— 0.29	. .	+ 3.51	16 24 41.89	— 1.78
20	47	α Tauri	F.	18.5	21.2	22.9	29.2	31.5	33.5	39.8	41.5	44.0	28 31.34	— 0.40	+ 2.88	+ 2.88	4 28 33.82	— 0.02
	48	β Orionis. . . .	F.	7.9	10.4	12.0	18.2	20.3	22.2	28.5	29.8	32.7	8 20.22	— 0.79	+ 2.87	+ 2.87	5 8 22.30	0.00

9, 14, 20. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	289 28	1.5	28.6	23.0	29.2	33	. .	. .	. .	512	498	55.6	70 27 15.3	728	+ 2 38.8	121 36 15.3	− 1.2
2	312 44	0.5	28.0	22.9	28.0	38	. .	. .	. .	586	580	55.6	47 12 32.9	. .	+ 1 1.4	98 19 55.5	+ 1.6
3	359 48	5.1	3.3	28.8	3.2	35	. .	206	. .	190	. .	55.6	0 13 46.5	. .	+ 0.2	51 20 7.9	+ 0.6
4	53 46	3.5	0.8	27.5	1.0	33	470	472	476	. .	. .	55.6	306 9 17.7	730	− 1 17.6	357 14 21.3	− 0.1
5																	
6																	
7																	
8																	
9	63 44	27.1	26.4	21.7	25.0	32	. .	. .	. .	. .	805	56.0	296 11 1.9	672	− 1 53.7	347 15 29.4	+ 2.5
10	312 8	9 26.2	23.6	18.0	21.6	33	. .	885	. .	875	. .	56.0	47 47 16.1	. .	+ 1 1.9	98 54 39.2	+ 2.3
11	358 52	5.6	3.9	28.0	0.5	35	. .	875	. .	915	. .	56.0	1 3 57.0	. .	+ 1.0	52 10 19.2	+ 1.8
12	304 54	7.7	5.0	29.4	2.6	38	. .	060	. .	120	. .	56.0	55 2 32.1	. .	+ 1 20.3	106 10 13.6	− 7.4
13	306 42	5.2	2.7	26.0	0.5	36	850	. .	. .	. .	835	56.0	53 14 10.2	680	+ 1 15.2	104 21 46.6	− 6.9
14	302 0	3.2	0.0	24.0	27.9	31	225	. .	470	. .	590	56.0	57 54 45.0	680	+ 1 29.5	109 2 35.7	
15	294 56	8.1	6.1	0.0	4.5	37	. .	835	. .	860	. .	56.0	65 0 29.3	686	+ 2 0.2	116 8 50.7	+ 0.1
16	22 8	4.0	3.8	27.3	29.6	37	. .	. .	990	. .	. .	56.0	337 48 28.1	. .	− 23.0	28 54 26.3	+ 4.4
17	14 12	1.7	1.1	24.0	26.1	37	. .	. .	. .	735	. .	56.0	345 44 21.6	. .	− 14.3	36 50 28.5	+ 3.7
18	14 12	1.7	1.1	24.0	26.1	31	. .	. .	. .	. .	915	56.0	345 42 52.8	. .	− 14.4	36 48 59.6	+ 3.7
19	347 0	1.7	1.1	24.4	26.8	40	790	. .	. .	. .	815	56.0	12 57 9.0	. .	+ 13.0	64 3 43.2	− 1.0
20	19 28	0.9	0.9	24.7	25.9	35	495	. .	. .	. .	530	56.0	340 27 47.1	693	− 20.0	31 33 48.3	+ 0.6
21	346 2	8.4	5.7	29.6	1.5	35	690	730	. .	. .	. .	56.0	13 53 56.0	. .	+ 14.0	65 0 31.2	− 1.6
22	7 24	4.0	3.5	28.0	29.4	35	. .	095	. .	160	. .	56.0	352 31 44.5	. .	− 7.4	43 37 58.3	− 0.8
23	351 54	7.3	6.0	0.0	1.6	34	410	. .	. .	. .	475	56.0	8 1 36.6	. .	+ 8.0	59 8 5.8	− 2.1
24	348 50	0.9	29.8	24.3	26.5	35	. .	130	. .	140	. .	56.0	11 5 41.1	. .	+ 11.1	62 12 13.4	+ 1.4
25	17 56	7.4	6.3	0.8	2.0	37	. .	485	. .	515	. .	56.0	342 0 24.0	. .	− 18.4	33 6 26.8	+ 2.5
26	290 40	2.5	1.1	24.0	29.1	38	. .	570	. .	545	. .	56.0	69 16 34.7	. .	+ 2 28.4	120 25 24.3	− 0.7
27	349 48	29.2	27.7	21.6	23.5	39	. .	. .	. .	425	405	56.0	10 8 44.6	. .	+ 10.1	62 15 15.9	− 3.0
28	47 38	28.7	28.9	23.7	26.0	37	. .	850	880	930	. .	56.0	312 18 22.2	. .	− 1 2.1	3 23 41.3	+ 1.1
29	312 44	7.0	5.5	29.3	2.5	38	. .	070	. .	090	. .	56.0	47 12 31.8	710	+ 1 1.2	98 19 54.2	+ 0.4
30																	
31	326 36	26.8	24.1	18.3	22.3	36	. .	660	. .	670	. .	54.6	33 19 58.1	. .	+ 35.9	84 26 55.2	+ 0.2
32	333 38	21.6	18.9	14.0	16.5	35	. .	719	. .	759	. .	54.6	26 17 38.8	552	+ 27.0	77 24 27.0	+ 1.1
33	341 32	23.5	22.2	16.2	19.0	36	. .	. .	. .	909	929	54.6	18 23 59.4	556	+ 18.2	69 30 38.8	+ 1.7
34																	
35	342 16	29.0	27.1	20.5	24.5	35	. .	. .	. .	890	872	54.6	17 39 48.6	550	+ 17.4	68 46 27.2	+ 1.4
36	295 38	23.3	19.9	13.2	18.9	38	. .	. .	. .	210	230	54.6	64 18 17.6	666	+ 1 56.1	115 26 34.9	−11.0
37																	
38	358 52	26.6	25.5	19.2	21.7	36	. .	410	. .	450	. .	54.6	1 3 55.1	682	+ 1.1	52 10 17.4	+ 0.2
39	348 12	27.4	25.2	21.0	23.1	39	. .	130	. .	070	. .	54.6	11 44 37.0	. .	+ 11.7	62 51 9.9	+ 1.3
40	341 8	27.4	26.3	19.5	22.5	37	. .	. .	775	775	. .	54.6	18 48 16.2	. .	+ 19.2	69 54 56.6	+ 0.3
41	304 42	27.0	23.8	17.3	22.9	34	. .	785	. .	795	. .	54.6	55 13 29.0	. .	+ 1 20.0	106 21 10.2	− 6.8
42	358 2	26.8	25.6	19.0	21.9	33	. .	107	. .	107	. .	54.6	1 53 4.1	. .	+ 1.9	52 59 27.2	+ 2.6
43	301 36	28.0	24.4	19.3	25.1	33	. .	. .	. .	550	570	54.6	58 19 11.4	. .	+ 1 31.2	109 27 3.8	+13.6
44	301 56	29.7	26.0	20.2	25.0	33	. .	391	. .	. .	. .	54.6	57 59 10.0	. .	+ 1 30.1	109 7 1.3	− 6.8
45	301 56	29.7	26.0	20.2	25.0	35	. .	. .	. .	900	910	54.6	57 59 48.5	. .	+ 1 30.2	109 7 39.9	− 6.8
46	342 48	22.8	22.3	14.7	19.0	33	. .	570	. .	577	. .	54.6	17 7 7.5	. .	+ 17.4	68 13 46.1	− 0.2
47	337 18	3.5	1.1	27.9	29.4	37	. .	390	. .	400	. .	53.6	22 38 15.9	582	+ 23.0	73 45 0.1	+ 1.3
48	312 42	9 29.6	26.8	22.0	26.0	35	. .	404	. .	410	. .	53.6	47 13 40.8	562	+ 59.3	98 21 1.3	0.0

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
4	30.230	72.0	65.0
14	30.236	75.0	71.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
14	−50 31.8	+ 16 19.8		− 34 12.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us corrections
1872.													m. s.	s.	s.	s.	h. m. s.	s.
June 20	1	β Tauri	F.	. .	. .	. .	. .	. .	. .	17.9	19.5	22.4	18 8.50	— 0.20	+ 2.78	+ 2.87	5 18 11.17	+ 0.07
	2	Venus I, S.	F.	33.9	36.7	38.3	. .	. .	. .	56.1	57.9	0.5	32 47.23	— 0.29	. .	+ 2.86	5 32 49.80	+ 0.33
	3	Venus II, N.	F.	. .	. .	43.5	45.7	47.8	50.1	52.4	. .	. .	32 47.90	— 0.29	. .	+ 2.86	5 32 50.47	— 0.34
21	4	Sun I, N.	F.	56.9	59.7	1.3	8.0	10.3	12.5	19.0	20.8	23.6	1 10.23	— 0.28	. .	+ 2.85	6 1 12.80	. .
	5	Sun II, S.	F.	14.7	17.5	19.2	25.9	28.1	30.4	37.0	38.7	41.5	3 28.11	— 0.28	. .	+ 2.85	6 3 30.68	. .
	6	α^2 Geminorum	F.	7.7	10.8	12.6	19.7	22.1	24.5	31.7	33.7	36.8	26 22.18	— 0.12	+ 2.82	+ 2.83	7 26 24.89	+ 0.25
	7	α Canis Minoris	F.	20.5	23.1	24.7	30.9	33.0	35.0	41.2	42.7	45.2	32 32.92	— 0.57	+ 2.81	+ 2.83	7 32 35.18	— 0.14
	8	β Geminorum	F.	11.3	14.3	16.0	23.0	25.2	27.6	34.6	36.3	39.2	37 25.28	— 0.20	+ 2.92	+ 2.83	7 37 27.91	— 0.08
26	9	α Draconis	Ha.	28.0	34.2	. .	52.1	56.9	1.6	. .	20.0	26.0	0 56.97	+ 0.53	. .	— 0.09	14 0 57.41	— 0.04
	10	α Bootis	Ha.	. .	. .	48.5	50.7	52.8	55.1	59.4	0.9	3.8	9 50.68	— 0.14	+ 0.02	— 0.09	14 9 50.45	— 0.11
	11	ι Cassiopeæ, S. P.	Ha.	. .	. .	43.0	38.0	32.7	27.6	22.3	. .	. .	18 32.72	— 0.91	. .	— 0.10	2 18 31.71	+ 0.08
	12	5 Ursæ Minoris	Ha.	0.0	10.9	17.5	. .	. .	. .	. .	. .	. .	27 51.75	+ 1.19	. .	— 0.10	14 27 52.84	— 0.15
	13	ϵ Bootis	Ha.	11.6	14.5	16.0	22.8	25.2	27.6	34.6	36.3	39.1	39 25.30	— 0.07	— 0.02	— 0.10	14 39 25.13	— 0.10
	14	α Serpentis	Ha.	47.5	50.0	51.6	57.7	59.7	1.7	7.9	9.5	12.0	37 59.73	— 0.25	— 0.07	— 0.12	15 37 59.36	— 0.03
	15	ϵ Serpentis	Ha.	15.8	18.4	19.9	26.0	28.0	30.0	36.3	37.9	40.4	44 28.08	— 0.26	— 0.02	— 0.12	15 44 27.70	— 0.10
	16	B. A. C. 5434	Ha.	37.9	40.7	42.3	48.9	51.2	53.6	0.0	1.7	4.6	10 51.21	— 0.11	. .	— 0.14	16 10 50.96	— 1.74
	17	B. A. C. 5459	Ha.	45.0	50.2	53.2	5.6	9.7	13.6	26.0	29.0	34.3	15 9.62	+ 0.38	. .	— 0.14	16 15 9.86	— 2.62
	18	B. A. C. 5503	Ha	27.9	32.0	34.6	44.6	47.8	51.0	1.1	3.6	7.8	21 47.82	+ 0.21	. .	— 0.14	16 21 47.89	— 2.26
	19	Moon II	Ha.	36.9	39.7	41.1	47.5	49.5	51.6	57.8	59.5	2.0	10 49.51	— 0.28	. .	— 0.30	0 10 48.93	—65.86
	20	β Ceti	Ha.	58.3	1.0	2.5	9.0	11.2	13.3	19.8	21.3	24.0	37 11.16	— 0 41	— 0.45	— 0.31	0 37 10.44	+ 0.19
	21	ϵ Piscium	Ha.	6.7	9.3	10.8	16.9	19.0	21.0	27.3	28.7	31.3	56 19.00	— 0.17	— 0.40	— 0.32	0 56 18.51	+ 0.10
	22	Polaris	Ha.	. .	. .	35.5	1.0	25.0	52.0	18.0	. .	. .	11 26.30	. .	. .	. .	. . . .	. .
	23	θ^1 Ceti	Ha.	26.0	28.7	30.2	36.4	38.6	40.7	46.8	48.3	50.9	17 38.51	— 0.31	— 0.45	— 0.33	1 17 37.87	+ 0.12
	24	α Tauri	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	25	β Orionis	S.	11.0	13.6	15.2	21.4	23.4	25.4	31.5	33.2	35.7	8 23.38	— 0.46	— 0.51	— 0.47	5 8 22.45	+ 0.04
27	26	Sun S.	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	27	Sun II, N.	S.	13.4	16.0	17.7	24.3	26.6	28.9	35.5	37.3	40.0	28 26.63	— 0.16	. .	— 0.51	6 28 25.96	—68.82
	28	Polaris	S.	. .	. .	. .	4.0	29.5	53.0	19.0	. .	. .	11 28.65	. .	. .	. .	. . . .	. .
	29	θ^1 Ceti	S.	26.9	29.4	31.0	37.2	39.3	41.4	47.6	49.1	51.7	17 39.29	— 0.44	— 1.05	— 1.09	1 17 37.76	— 0.02
	30	α Tauri	E.	22.6	25.2	27.0	33.4	35.5	37.6	44.0	45.6	48.1	28 35.44	— 0.08	— 1.36	— 1.44	4 28 33.92	— 0.10
	31	ι Aurigæ	E.	25.5	28.7	30.4	37.7	40.2	42.6	49.9	51.8	54.9	48 40.19	+ 0.01	— 1.45	— 1.45	4 48 38.75	— 0.04
	32	β Orionis	E.	11.9	14.5	16.0	22.0	24.0	26.0	32.4	34.0	36.6	8 24.16	— 0.23	— 1.50	— 1.46	5 8 22.47	+ 0.04
	33	β Tauri	E.	. .	. .	. .	. .	. .	17.4	22.0	23.8	26.7	18 12.74	— 0.01	— 1.49	— 1.47	5 18 11.26	0.00
28	34	Sun I, N.	E.	. .	16.5	18.6	20.9	23.0	. .	27.6	29.3	32.0	30 18.64	— 0.04	. .	— 1.51	6 30 17.09	. .
	35	Sun II, S.	E.	22.6	25.6	27.4	33.9	36.1	38.4	35.1	36.8	39.5	32 36.16	— 0.04	. .	— 1.51	6 32 34.61	. .
	36	α^2 Geminorum	E.	11.8	14.8	16.7	24.0	26.4	28.8	6.0	8.0	11.0	26 26.39	+ 0.01	— 1.48	— 1.54	7 26 24.86	+ 0.18
	37	α Canis Minoris	E.	24.5	27.2	28.7	34.8	36.8	38.9	45.0	46.6	49.3	32 36.87	— 0.14	— 1.54	— 1.54	7 32 35.19	— 0.16
	38	β Geminorum	E.	15.6	18.6	20.4	27.0	29.5	31.8	38.9	40.6	43.6	37 29.56	— 0.01	— 1.52	— 1.54	7 37 28.01	— 0.05
	39	ϵ Bootis	E.	13.0	16.0	17.8	24.5	26.9	29.2	36.2	38.0	41.0	39 26.96	+ 0.09	— 1.86	— 1.76	14 39 25.29	+ 0.08
	40	XIV, 24	E.	. .	. .	52.5	55.1	57.6	0.0	2.5	. .	. .	47 57.54	— 0.46	. .	— 1.77	14 47 55.31	— 1.50
	41	XIV, 27	E.	. .	. .	36.8	39.4	41.6	44.0	48.7	50.2	53.4	49 39.30	— 0.31	. .	— 1.77	14 49 37.22	— 1.46
	42	XIV, 29	E.	38.1	41.0	42.9	49.7	51.9	54.2	1.0	2.6	5.7	0 51.90	— 0.29	. .	— 1.77	15 0 49.84	— 1.50
	43	48 Cephei, S. P.	E.	. .	. .	28.4	18.8	9.9	1.2	51.6	. .	. .	4 9.98	— 0.99	. .	— 1.77	3 4 7.22	+ 0.41
	44	β Libræ	E.	58.3	0.9	2.5	8.7	10.7	12.7	19.0	20.5	23.2	10 10.72	— 0.15	— 1.85	— 1.78	15 10 8.79	+ 0.07
	45	XV, 7	E.	48.9	51.7	53.6	0.5	2.7	5.3	12.2	14.0	16.7	15 2.84	— 0.31	. .	— 1.78	15 15 0.75	— 1.62
	46	μ^1 Bootis	E.	27.0	30.4	32.3	40.2	42.6	45.2	53.0	54.8	58.2	19 42.63	+ 0.17	— 1.80	— 1.78	15 19 41.02	+ 0.01
	47	XV, 12	E.	20.0	22.9	24.6	31.5	33.6	35.8	42.7	44.3	47.1	25 33.61	— 0.28	. .	— 1.79	15 25 31.54	— 1.64
	48	XV, 15	E.	25.7	28.6	30.3	37.3	39.5	41.6	48.7	50.4	53.4	29 39.50	— 0.29	. .	— 1.79	15 29 37.42	— 1.67
	49	XV, 20	E.	. .	. .	15.6	17.8	20.0	22.2	24.3	. .	. .	33 19.98	— 0.24	. .	— 1.79	15 33 17.95	— 1.63

9. Bisections at wires I and III.
12. Bisection at wire III.
43. Bisections at set C.
48. Bisections at wires V and VI.
49. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	349 32	9 29.0	26.7	23.0	25.3	35	. .	. .	. .	410	406	53.6	10 23 41.0	. .	+ 10.1	61 30 12.3	+ 1.8
2	344 18	2.5	0.1	24.3	28.1	32	174	. .	. .	. .	114	53.6	15 36 53.8	564	+ 15.4	66 43 30.4	
3	344 18	2.5	0.1	24.3	28.1	31	. .	494	. .	504	. .	53.6	15 36 45.2	. .	+ 15.3	66 43 21.7	
4	344 46	9 20.3	17.3	11.0	16.3	38	740	720	. .	. .	. .	53.6	15 10 22.4	550	+ 14.8	66 16 58.4	
5	344 14	9 23.7	21.8	15.8	18.3	36	. .	. .	. .	570	544	53.6	15 41 52.5	. .	+ 15.4	66 48 29.1	
6	353 12	2.3	0.3	25.9	29.3	34	. .	410	. .	384	. .	53.6	6 43 28.9	522	+ 6.4	57 49 56.5	+ 1.9
7	326 36	6.5	4.5	29.1	3.6	36	. .	150	. .	136	. .	53.6	33 19 59.5	522	+ 35.8	84 26 56.5	+ 1.7
8	349 22	2.1	29.3	24.3	27.7	34	. .	200	. .	216	. .	53.6	10 33 24.9	524	+ 10.1	61 39 56.2	+ 1.1
9	26 2	6.5	6.8	28.3	1.0	38	395	. .	525	. .	. .	54.0	333 54 36.2	582	— 27.1	25 0 30.3	— 1.1
10	340 54	7.2	6.8	28.9	0.9	37	. .	. .	. .	. .	425	54.0	19 2 19.8	. .	+ 19.0	70 9 0.0	+ 2.5
11	74 10	29.5	0.5	22.7	25.6	37	. .	170	. .	190	. .	54.0	285 46 8.8	590	— 3 12.1	336 49 17.9	+ 1.0
12	37 18	2.0	1.6	25.0	27.1	37	390	. .	. .	. .	. .	54.0	322 38 15.0	. .	— 42.1	13 43 54.1	— 0.5
13	348 40	3.0	1.7	24.2	26.6	38	. .	350	. .	425	. .	54.0	11 16 30.1	595	+ 11.0	62 23 2.3	+ 1.4
14	327 54	8.6	7.4	0.0	2.9	41	. .	220	. .	190	. .	54.0	32 3 19.0	610	+ 34.6	83 10 14.8	+ 2.1
15	325 54	9.6	8.8	29.5	3.5	32	. .	855	. .	845	. .	54.0	34 1 11.3	. .	+ 37.4	85 8 9.9	+ 1.4
16	344 28	3.3	2.2	24.3	26.6	31	. .	800	. .	815	. .	54.0	15 26 49.2	. .	+ 15.3	66 33 25.7	+ 1.3
17	21 6	8.0	8.2	0.1	2.6	35	. .	. .	. .	930	840	54.0	338 49 58.1	. .	— 21.5	29 55 57.8	+ 5.9
18	13 2	6.3	7.5	0.2	1.7	33	. .	485	. .	560	. .	54.0	346 53 20.6	615	— 12.9	37 59 28.9	+ 5.0
19																	
20																	
21																	
22																	
23																	
24	337 18	4.6	4.5	26.5	2.7	37	241	265	. .	259	235	53.2	22 38 14.9	589	+ 23.0	73 44 59.1	+ 0.9
25	312 42	5.4	5.0	27.6	3.4	34	. .	878	. .	931	. .	53.2	47 13 39.4	. .	+ 59.4	98 21 0.0	+ 0.1
26	344 6	10.3	11.8	4.5	10.1	38	595	605	. .	. .	. .	53.2	15 50 42.9	. .	+ 15.6	66 57 19.7	
27	344 38	6.9	7.5	28.7	6.0	40	. .	. .	. .	860	885	53.2	15 19 13.2	. .	+ 15.1	66 25 49.5	
28																	
29																	
30	337 18	18.9	17.8	10.3	14.2	36	. .	408	. .	410	. .	53.0	22 38 15.0	580	+ 22.9	73 44 59.1	+ 1.0
31	354 0	6.5	4.5	28.2	1.5	35	. .	875	. .	885	. .	53.0	5 55 54.4	. .	+ 5.7	57 2 21.3	+ 0.8
32	312 42	11.5	10.3	5.0	9.3	34	. .	495	. .	490	. .	53.0	47 13 39.1	. .	+ 59.4	98 20 59.7	0.0
33	349 32	6.8	5.4	28.8	2.4	34	. .	. .	. .	890	910	53.0	10 23 40.0	. .	+ 9.8	61 30 11.0	+ 0.4
34	344 32	12.8	11.5	2.7	8.8	.	432	380	. .	. .	. .	53.0	15 22 6.2	. .	+ 14.7	66 28 42.1	
35	344 2	12.8	9.3	2.0	9.0	31	. .	. .	. .	380	330	53.0	15 53 36.4	450	+ 15.2	67 0 12.8	
36	353 12	10.0	9.4	3.5	8.7	33	. .	822	. .	814	. .	53.0	6 43 27.9	. .	+ 6.3	57 49 55.4	+ 0.4
37	326 36	8.8	7.7	2.0	7.9	35	. .	940	. .	968	. .	53.0	33 19 59.2	. .	+ 35.1	84 26 55.5	+ 1.2
38	349 22	10.7	10.0	4.3	7.9	33	. .	334	. .	748	. .	53.0	10 33 23.9	450	+ 10.0	61 39 55.1	— 0.3
39	348 40	11.0	11.7	4.5	6.5	37	. .	720	. .	700	. .	54.0	11 16 29.2	. .	+ 11.0	62 23 1.4	+ 0.8
40	287 46	18.3	16.8	8.3	14.3	39	. .	550	. .	535	. .	54.0	72 11 3.0	. .	+ 2 50.2	123 20 14.4	—12.6
41	292 26	21.0	19.5	9.5	17.2	34	. .	. .	. .	905	915	54.0	67 29 54.1	. .	+ 2 12.6	118 38 27.9	—11.4
42	294 50	12.5	10.5	2.8	8.2	32	. .	180	. .	150	. .	54.0	65 5 3.8	618	+ 1 58.5	116 13 23.5	—10.4
43	63 44	9.5	9.3	4.8	6.9	31	920	. .	. .	. .	914	54.0	296 10 59.3	. .	— 1 52.1	347 15 28.4	+ 2.7
44	312 8	17.0	15.8	8.1	12.7	32	. .	590	. .	650	. .	54.0	47 47 15.8	. .	+ 1 1.0	98 54 38.0	+ 1.5
45	292 12	12.0	10.3	3.0	8.0	37	. .	490	. .	450	. .	54.0	67 44 25.1	. .	+ 2 14.3	118 53 0.6	—10.6
46	358 52	14.2	13.5	6.0	7.0	35	. .	530	. .	520	. .	54.0	1 3 57.5	620	+ 1.0	52 10 19.7	+ 4.2
47	295 42	15.0	12.8	4.5	11.6	34	. .	435	. .	465	. .	54.0	64 13 41.4	. .	+ 1 54.2	115 21 56.8	— 9.5
48	294 0	10.1	8.7	1.0	6.7	30	. .	. .	542	606	. .	54.0	65 54 37.6	. .	+ 2 3.2	117 3 2.0	— 9.7
49	299 52	10.3	11.7	2.4	6.8	33	645	. .	. .	. .	635	54.0	60 3 25.8	. .	+ 1 35.9	111 11 22.9	— 8.1

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
4	30.226	78.0	86.0
13	30.046	79.0	78.4

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	″	′ ″
2	— 1.8	— 4.4	. .	— 6.2
3	— 1.8	+ 4.4	. .	+ 2.6
4	— 2.3	+ 15 45.3	. .	+ 15 43.0
5	— 2.4	— 15 45.3	. .	— 15 47.7
26	— 2.3	— 15 45.1	. .	— 15 47.4
27	— 2.3	+ 15 45.1	. .	+ 15 42.8
34	— 2.3	+ 15 45.3	. .	+ 15 43.1
35	— 2.4	— 15 45.3	. .	— 15 47.7

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSITS OVER WIRES.										CORRECTIONS.			Apparent Right Ascension.	Miscellan'us Corrections.
				I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	Inst.	Clock appar'nt.	Clock adopted.		
1872.													m. s.	s.	s.	s.	h. m. s.	s.
June 28	1	XV, 21	E.	15.6	18.5	20.3	27.0	29.3	31.7	38.6	40.3	43.4	38 29.41	— 0.30	. .	— 1.80	15 38 27.31	— 1.73
	2	ε Serpentis	E.	17.3	19.9	21.4	27.6	29.6	31.7	37.8	39.5	42.0	44 29.64	— 0.05	— 1.80	— 1.80	15 44 27.79	0.00
	3	ζ Ursæ Minoris	E.	. .	. .	26.2	36.4	46.3	56.3	6.5	. .	. .	48 46.34	+ 1.18	. .	— 1.80	15 48 45.72	— 0.19
29	4	42 Libræ	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	5	κ Libræ	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	6	η Libræ	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	7	θ Libræ	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	8	49 Libræ	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	9	ω^2 Scorpii	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
30	10	Polaris	S.	. .	. .	46.5	11.5	35.5	1.5	28.0	. .	. .	11 36.60	+ 9.00	. .	— 3.36	1 11 42.24	— 4.25
	11	β Arietis	S.	24.8	27.5	29.0	35.7	37.9	40.0	46.6	48.2	51.0	47 37.86	— 0.02	— 3.37	— 3.37	1 47 34.47	+ 0.02
	12	α Arietis	S.	47.8	50.7	52.3	58.9	1.0	3.3	10.0	11.7	14.4	0 1.12	0.00	— 3.38	— 3.38	1 59 57.74	+ 0.01
	13	α Persei	S.	. .	. .	8.0	11.0	14.3	17.3	20.5	. .	. .	15 14.22	+ 0.22	. .	— 3.39	3 15 11.05	+ 0.10
	14	Moon II	S.	47.8	50.5	52.2	58.6	0.9	3.0	9.7	11.3	14.0	28 0.89	— 0.04	. .	— 3.40	3 27 57.45	−65.32
	15	α Tauri	S.	24.8	27.4	29.1	35.3	37.5	39.7	46.0	47.7	50.3	28 37.53	— 0.04	— 3.42	— 3.41	4 28 34.08	— 0.01
	16	β Orionis	S.	13.8	16.4	18.0	24.2	26.2	28.2	34.3	35.9	38.5	8 26.17	— 0.21	— 3.47	— 3.42	5 8 22.54	+ 0.05
July 1	17	Sun I	S.	32.5	35.5	37.1	44.0	46.0	48.3	54.9	56.8	59.5	41 46.07	0.00	. .	— 3.45	6 41 42.62	. .
	18	Sun II	S.	49.9	52.7	54.3	1.0	3.2	5.5	12.3	13.7	16.8	44 3.27	0.00	. .	— 3.45	6 43 59.82	. .
	19	α Canis Minoris	S.	. .	. .	34.7	36.8	38.9	40.9	43.0	. .	. .	32 38.86	— 0.11	— 3.54	— 3.46	7 32 35.29	— 0.08
	20	Polaris, S. P.	S.	. .	. .	46.5	23.0	56.0	35.0	9.5	. .	. .	11 58.04	−11.07	. .	— 3.54	1 11 43.43	— 3.56
	21	α Virginis	S.	21.8	23.3	27.4	29.6	31.7	33.8	35.9	40.0	41.6	18 31.68	— 0.20	— 3.56	— 3.55	13 18 27.93	— 0.01
	22	ζ Virginis	S.	2.6	5.2	6.7	12.9	14.9	17.0	23.0	24.5	27.1	28 14.88	— 0.12	— 3.56	— 3.55	13 28 11.21	+ 0.01
	23	η Bootis	S.	27.0	29.8	31.3	37.8	40.0	42.2	48.6	50.2	52.9	48 39.98	+ 0.01	— 3.57	— 3.55	13 48 36.44	— 0.03
	24	α Draconis	S.	31.5	37.5	41.1	55.6	0.5	5.3	19.9	23.4	29.3	1 0.46	+ 0.52	. .	— 3.56	14 1 57.42	+ 0.16
	25	α Bootis	S.	41.1	43.8	45.5	52.0	54.0	56.2	2.9	4.5	7.1	9 54.12	+ 0.01	— 3.62	— 3.56	14 9 50.57	+ 0.06
	26	49 Libræ	S.	1.4	4.1	5.6	12.0	14.1	16.4	22.8	24.4	27.1	53 14.21	— 0.24	. .	— 3.58	15 53 10.39	— 1.67
	27	δ Ophiuchi	S.	31.5	34.0	35.6	41.7	43.7	45.7	52.0	53.5	56.0	7 43.74	— 0.15	— 3.56	— 3.59	16 7 40.00	— 0.01
	28	19 Scorpii	S.	48.4	51.3	53.0	59.7	2.0	4.2	11.0	12.7	15.5	13 1.98	— 0.31	. .	— 3.59	16 12 58.08	— 1.83
	29	χ Ophiuchi	S.	29.1	31.8	33.4	40.0	42.0	44.1	50.7	52.3	55.0	19 42.04	— 0.26	. .	— 3.59	16 19 38.19	— 1.80
	30	ζ Ophiuchi	S.	59.8	2.5	4.0	10.1	12.2	14.4	20.5	22.1	24.7	30 12.26	— 0.20	— 3.55	— 3.59	16 30 8.47	— 0.04
	31	η Herculis	S.	20.1	23.4	25.3	33.3	35.8	38.5	46.4	48.5	51.8	38 35.90	+ 0.15	— 3.58	— 3.59	16 38 32.46	0.00
	32	B. A. C. 5703	S.	39.6	42.5	48.7	51.0	53.2	55.6	57.9	4.1	7.0	49 53.29	+ 0.05	. .	— 3.60	16 49 49.74	— 1.83
	33	B. A. C. 5752	S.	. .	. .	59.0	2.9	6.6	10.3	14.1	. .	. .	57 6.58	+ 0.36	. .	— 3.60	16 57 3.34	— 2.82
	34	B. A. C. 5797	S.	. .	. .	4.4	8.3	12.0	16.2	20.0	. .	. .	5 12.18	+ 0.38	. .	— 3.60	17 5 8.96	— 2.93
	35	a^1 Herculis	S.	41.4	44.2	45.8	52.0	54.1	56.4	2.6	4.2	6.9	8 54.18	— 0.02	. .	— 3.60	17 8 50.56	+ 0.06
	36	B. A. C. 5842	S.	. .	. .	36.5	38.8	41.3	43.8	46.3	. .	. .	12 41.34	+ 0.11	. .	— 3.60	17 12 37.85	— 1.95
	37	B. A. C. 5895	S.	. .	. .	1.4	4.1	6.7	9.1	11.6	. .	. .	20 6.58	+ 0.14	. .	— 3.60	17 20 3.12	— 2.02
	38	B. A. C. 6079	S.	. .	. .	17.4	21.2	25.0	28.6	32.4	. .	. .	51 24.92	+ 0.36	. .	— 3.61	17 51 21.67	— 2.69
	39	γ^2 Sagittarii	S.	27.1	30.1	31.9	39.0	41.4	43.7	50.6	52.6	55.6	57 41.33	— 0.38	— 3.50	— 3.61	17 57 37.34	— 0.10
	40	B. A. C. 6150	S.	24.5	27.4	29.2	36.2	38.5	40.9	48.0	49.6	52.5	2 38.53	+ 0.08	. .	— 3.62	18 2 34.99	— 1.97
	41	B. A. C. 6185	S.	. .	. .	53.1	56.6	0.2	3.7	7.2	. .	. .	8 0.16	+ 0.32	. .	— 3.62	18 7 56.86	— 2.52
	42	B. A. C. 6223	S.	46.7	49.5	51.3	58.0	0.2	2.3	9.1	10.9	13.6	14 0.18	+ 0.04	. .	— 3.62	18 13 56.60	— 1.94
	43	B. A. C. 6311	S.	. .	. .	53.8	57.9	1.9	6.0	10.2	. .	. .	25 1.96	+ 0.40	. .	— 3.62	18 24 58.74	— 2.80
	44	B. A. C. 6322	S.	18.7	21.6	23.3	30.0	32.2	34.4	41.0	42.8	45.5	27 32.17	+ 0.04	. .	— 3.62	18 27 28.59	— 1.94
	45	B. A. C. 6387	S.	1.7	4.4	6.0	12.6	14.7	16.9	23.6	25.2	27.9	40 14.78	+ 0.01	. .	— 3.63	18 40 11.16	— 1.92
	46	d Sagittarii	S.	1.6	4.3	6.0	12.5	14.6	16.9	23.3	24.9	27.6	10 14.63	— 0.27	— 3.57	— 3.63	19 10 10.73	— 0.04
	47	B. A. C. 6658	S.	6.1	8.9	10.5	17.0	19.2	21.4	27.9	29.4	32.2	20 19.18	— 0.27	. .	— 3.63	19 20 15.28	— 2.09
	48	κ Aquilæ	S.	53.7	56.3	57.8	4.0	6.0	8.0	14.3	15.9	18.5	30 6.06	— 0.18	— 3.65	— 3.64	19 30 2.24	+ 0.05
	49	f Sagittarii	S.	. .	. .	55.0	57.4	59.6	1.7	3.9	. .	. .	38 59.52	— 0.28	. .	— 3.64	19 38 55.60	— 2.08

33, 34, 36, 38, 41, 42. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Correction.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	293 24	12.7	11.4	3.2	9.8	32	. .	410	. .	480	. .	54.0	66 31 8.9	. .	+ 2 6.8	117 39 36.9	— 9.6
2	325 54	12.5	12.4	4.5	8.1	32	. .	550	. .	548	. .	54.0	34 1 10.8	. .	+ 37.4	85 8 9.4	+ 1.1
3	39 14	10.6	11.1	4.5	7.0	39	. .	875	. .	860	. .	54.0	320 43 3.7	628	— 45.4	11 48 39.5	+ 2.0
4	297 40	7.7	6.0	27.0	3.0	36	. .	446	. .	472	. .	52.1	62 16 2.7	. .	+ 1 44.2	113 24 8.1	— 8.8
5	301 48	16.8	14.2	5.7	11.7	35	. .	. .	. .	776	790	52.1	58 8 0.9	. .	+ 1 28.3	109 15 50.4	— 7.8
6	305 48	13.2	11.2	1.9	7.5	36	. .	988	. .	978	. .	52.1	54 8 15.9	598	+ 1 16.0	105 15 53.1	— 6.7
7	304 43	12 13.1	11.5	2.8	8.4	38	050	014	. .	. .	. .	52.1	55 13 32.5	. .	+ 1 19.1	106 21 12.8	— 6.8
8	304 54	13.6	10.7	2.8	6.9	34	. .	774	. .	790	. .	52.1	55 1 42.1	. .	+ 1 18.6	106 9 21.9	— 6.5
9	300 32	10.9	9.4	0.0	5.5	33	. .	970	. .	986	. .	52.1	59 23 27.7	602	+ 1 32.8	110 31 21.7	— 7.3
10	49 38	3.4	5.0	25.8	1.9	33	. .	912	898	892	. .	52.6	310 17 22.2	611	— 1 5.1	1 22 38.3	— 0.9
11	341 14	10.0	8.0	29.4	5.1	37	860	888	. .	877	865	52.6	18 42 27.5	592	+ 18.6	69 49 7.3	0.0
12	343 54	10.7	8.8	29.6	5.2	36	. .	. .	. .	202	204	52.6	16 2 2.2	570	+ 15.7	67 8 39.1	— 0.3
13	10 26	9.4	9.6	0.9	5.6	34	. .	. .	. .	913	927	52.6	349 29 43.2	552	— 10.1	40 35 54.3	— 0.9
14																	
15	337 18	8.1	6.9	28.3	4.4	37	122	168	. .	193	190	52.6	22 38 15.4	522	+ 22.6	73 44 59.2	+ 1.4
16	312 42	10.5	8.5	0.1	7.0	34	745	770	. .	781	823	52.6	47 13 40.6	. .	+ 58.1	98 20 59.9	+ 0.8
17																	
18																	
19																	
20	52 24	15.1	16.0	6.3	11.9	36	330	290	290	290	327	51.2	307 32 8.4	. .	— 1 10.0	358 37 19.6	— 0.8
21																	
22	321 6	17.5	15.5	6.4	13.0	33	. .	374	. .	400	. .	51.2	38 49 24.5	470	+ 43.4	89 56 29.1	+ 0.9
23	340 4	11.1	9.9	0.7	5.5	31	. .	. .	. .	530	520	51.2	19 50 49.8	. .	+ 19.5	70 57 30.5	— 0.3
24	26 2	10.8	11.5	2.5	6.4	38	. .	220	. .	190	. .	51.2	333 54 33.9	. .	— 26.5	25 0 28.6	— 2.3
25	340 54	17.3	16.5	8.9	11.7	36	. .	855	. .	867	. .	51.2	19 2 18.5	. .	+ 18.7	70 8 58.4	+ 1.4
26	304 54	13.0	11.4	2.4	8.6	34	. .	836	. .	872	. .	51.2	55 1 42.7	. .	+ 1 17.8	106 9 21.7	— 6.5
27	317 42	15.5	14.1	6.3	10.6	38	. .	335	. .	365	. .	51.2	42 14 39.3	. .	+ 49.5	93 21 50.0	+ 1.7
28	297 12	15.0	14.0	5.4	10.6	33	. .	950	. .	980	. .	51.2	62 43 31.4	. .	+ 1 45.3	113 51 37.9	— 7.5
29	302 54	11.4	10.0	1.1	7.0	36	. .	. .	. .	738	750	51.2	57 2 10.1	. .	+ 1 23.9	108 9 55.2	— 6.1
30	310 46	17.4	16.3	6.8	12.5	39	. .	. .	. .	700	762	51.2	49 11 2.0	. .	+ 1 3.0	100 18 26.2	+ 2.9
31	0 12	9.0	9.0	0.4	3.1	34	. .	490	. .	460	. .	51.2	359 43 33.7	. .	— 0.3	60 49 54.6	+ 0.9
32	346 58	9.8	8.7	0.0	3.3	32	. .	580	. .	600	. .	51.2	12 57 4.8	. .	+ 12.5	64 3 38.5	+ 1.8
33	17 54	14.1	14.9	6.6	9.5	32	810	. .	. .	. .	800	51.2	342 1 13.9	. .	— 17.7	33 7 17.4	+ 4.6
34	19 28	13.6	14.0	5.6	8.4	34	740	. .	. .	. .	740	51.2	340 27 42.7	. .	— 19.4	31 33 44.5	+ 4.5
35																	
36	354 16	14.4	14.6	9.3	6.0	32	445	. .	. .	. .	495	51.2	5 39 8.5	. .	+ 5.4	56 45 35.1	+ 2.0
37	358 6	19.4	19.8	10.4	14.8	33	. .	. .	. .	715	675	51.2	1 49 32.6	. .	+ 1.7	52 55 55.5	+ 2.1
38	17 56	17.9	19.4	10.4	13.6	36	720	. .	. .	. .	740	51.2	342 0 18.2	. .	— 17.8	33 6 21.6	+ 1.6
39	290 40	14.9	13.1	3.0	9.5	38	. .	500	. .	490	. .	51.2	69 16 39.8	. .	+ 2 23.8	120 25 24.8	— 0.9
40	349 48	9.0	8.3	0.9	3.8	38	. .	. .	. .	843	. .	51.2	10 8 40.9	. .	+ 9.9	61 15 12.0	+ 0.3
41	15 16	18.2	19.5	10.7	13.5	31	. .	. .	. .	. .	370	51.2	344 38 56.0	. .	— 15.1	35 45 2.1	+ 0.7
42	345 26	12.1	12.1	4.0	7.3	34	850	. .	. .	. .	900	51.2	14 29 43.2	. .	+ 14.2	65 36 18.6	— 0.1
43	20 40	13.0	11.7	4.5	8.2	37	. .	724	. .	710	. .	51.2	339 16 27.9	. .	— 20.8	30 22 28.3	— 0.4
44	344 34	18.5	18.5	8.7	12.5	35	. .	. .	. .	605	610	51.2	15 22 0.2	. .	+ 15.1	66 28 36.5	— 0.3
45	341 28	12.7	11.9	3.5	7.1	35	. .	240	. .	274	. .	51.2	18 27 49.0	. .	+ 18.4	69 34 28.6	— 0.5
46	301 54	14.5	13.3	4.3	10.5	39	. .	. .	. .	264	240	51.2	58 2 51.9	. .	+ 1 27.9	109 10 41.0	+ 3.2
47	302 28	11.0	9.6	1.0	6.9	38	. .	037	. .	047	. .	51.2	57 28 29.9	. .	+ 1 26.0	108 36 17.1	+ 1.5
48																	
49	301 0	11.5	11.0	2.6	7.9	36	. .	. .	. .	360	320	51.2	58 56 4.8	589	+ 1 31.0	110 3 57.0	+ 2.5

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
6	30.116	83.0	80.5
15	. .	. .	90.4
16	. .	. .	93.0
21	. .	. .	90.5
23	. .	. .	89.6
24	. .	. .	88.5
25	. .	. .	88.0
26	. .	. .	83.8
29	. .	. .	83.5
31	. .	. .	83.5
33	. .	. .	83.5
37	. .	. .	83.0
38	. .	. .	81.5
44	. .	. .	80.0
46	. .	. .	79.0
49	. .	. .	79.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
July 1	1	α Aquilæ. . . .	S.	25.5	28.0	29.7	35.9	37.9	40.0	46.1	47.7	50.2	44 37.89	— 0.07	— 3.67	— 3.64	19 44 34.18	+ 0.07
	2	β Aquilæ. . . .	S.	54.8	57.4	59.0	5.0	7.1	9.1	15.3	16.8	19.3	49 7.09	— 0.08	— 3.62	— 3.64	19 49 3.37	+ 0.01
	3	λ Ursæ Minoris. .	S.	. .	. .	. .	. .	49.0	40.0	15.0	36.5	53.5	53 1.66	+12.80	. .	— 3.64	19 53 10.82	— 0.80
	4	ι Aurigæ. . . .	E.	27.9	31.0	32.9	40.0	42.6	45.0	52.2	54.0	57.3	48 42.54	— 0.01	— 3.68	— 3.64	4 48 38.89	0.00
	5	β Orionis. . . .	E.	14.3	16.7	18.2	24.4	26.4	28.4	34.6	36.3	38.8	8 26.46	— 0.28	— 3.67	— 3.73	5 8 22.45	— 0.06
	6	β Tauri	E.	1.1	4.0	5.8	12.7	15.1	17.4	24.5	26.2	29.0	18 15.09	— 0.04	— 3.73	— 3.73	5 18 11.32	— 0.02
	7	δ Orionis. . . .	E.	18.9	21.6	23.2	27.2	31.3	35.4	39.5	41.0	43.6	25 31.30	— 0.23	— 3.71	— 3.73	5 25 27.34	— 0.05
	8	ε Orionis. . . .	E.	34.0	36.6	38.0	44.3	46.4	48.4	54.5	56.0	58.5	29 46.30	— 0.23	— 3.66	— 3.73	5 29 42.34	— 0.08
2	9	Sun I, N. . . .	E.	40.8	45.3	49.6	52.0	54.1	56.2	58.5	2.7	7.3	46 54.06	— 0.08	. .	— 3.74	6 46 50.24	. .
	10	Sun II, S. . . .	E.	58.0	0.9	2.4	9.2	11.3	13.5	20.5	22.1	24.7	49 11.40	— 0.08	. .	— 3.74	6 49 7.58	. .
	11	α Canis Minoris. .	E.	26.9	29.4	31.0	37.1	39.2	41.2	47.5	49.0	51.6	32 39.21	— 0.19	— 3.80	— 3.75	7 32 35.27	— 0.11
	12	β Geminorum . .	E.	17.9	20.8	22.5	29.4	31.8	34.2	41.2	42.9	45.9	37 31.84	— 0.04	— 3.74	— 3.75	7 37 28.05	— 0.04
	13	α Hydræ	E.	. .	. .	. .	. .	23.3	25.5	29.6	31.2	33.7	21 21.33	— 0.28	— 3.74	— 3.76	9 21 17.29	— 0.05
	14	α Coronæ Borealis .	E.	7.8	10.6	12.4	19.1	21.5	23.9	30.7	32.5	35.4	29 21.54	— 0.02	— 3.82	— 3.80	15 29 17.72	+ 0.02
	15	α Serpentis . . .	E.	51.0	53.6	55.2	1.4	3.4	5.4	11.7	13.3	15.8	38 3.42	— 0.14	— 3.89	— 3.80	15 37 59.48	+ 0.11
	16	ε Serpentis . . .	E.	19.6	22.0	23.9	29.8	31.8	33.9	40.0	41.6	44.2	44 31.87	— 0.16	— 3.93	— 3.80	15 44 27.91	+ 0.13
	17	B. A. C. 5253 . .	E.	. .	. .	. .	. .	. .	. .	30.2	31.9	44.6	46 21.24	— 0.37	. .	— 3.80	15 46 17.07	— 1.72
	18	π Scorpii. . . .	E.	. .	. .	10.2	12.6	14.9	17.2	21.8	23.5	26.5	51 12.68	— 0.38	. .	— 3.80	15 51 8.50	— 1.76
	19	ω^2 Scorpii. . . .	E.	46.9	49.7	51.3	57.9	0.1	2.2	8.7	10.5	13.5	0 0.09	— 0.34	. .	— 3.80	15 59 55.95	— 1.74
	20	ς Scorpii. . . .	E.	17.1	20.0	21.6	28.4	30.7	33.0	39.9	41.5	44.4	13 30.73	— 0.38	. .	— 3.80	16 13 26.55	— 1.89
	21	Anonymous . .	E.	. .	. .	. .	. .	. .	. .	28.8	30.7	33.6	15 18.77	— 0.48	. .	— 3.80	16 15 14.49	— 2.02
	22	Anonymous . .	E.	. .	. .	. .	. .	. .	. .	34.1	35.9	38.8	15 24.01	— 0.48	. .	— 3.80	16 15 19.73	— 2.02
	23	χ Ophiuchi . . .	E.	29.3	31.9	33.5	40.3	42.4	44.3	50.8	52.5	55.4	19 42.27	— 0.32	. .	— 3.81	16 19 38.14	— 1.81
	24	22 Scorpii	E.	18.5	21.5	23.0	29.7	32.0	34.3	41.1	42.8	45.7	22 32.07	— 0.38	. .	— 3.81	16 22 27.88	— 1.89
	25	ζ Ophiuchi . . .	E.	0.0	2.7	4.4	10.5	12.5	14.5	20.8	22.3	25.0	30 12.52	— 0.26	— 3.75	— 3.81	16 30 8.45	— 0.06
	26	B. A. C. 5574 . .	E.	55.4	0.0	2.7	. .	. .	. .	29.6	32.3	36.6	33 16.10	+ 0.20	. .	— 3.81	16 33 12.49	— 2.48
	27	B. A. C. 5575 . .	E.	. .	. .	11.5	15.0	18.3	21.9	25.5	. .	. .	33 18.44	+ 0.20	. .	— 3.81	16 33 14.83	— 2.48
	28	B. A. C. 5652 . .	E.	. .	. .	17.4	19.8	22.2	24.6	27.0	. .	. .	44 22.20	— 0.01	.	— 3.81	16 44 18.38	— 1.82
	29	B. A. C. 5666 . .	E.	30.8	33.7	35.5	42.6	45.0	47.3	54.5	56.3	59.3	45 45.00	0.00	. .	— 3.81	16 45 41.19	— 1.85
	30	ε Ursæ Minoris. .	E.	. .	. .	50.0	5.5	21.0	36.0	51.5	. .	. .	59 20.80	+ 1.45	. .	— 3.81	16 59 18.44	+ 0.23
	31	ι Aurigæ. . . .	F.	. .	. .	. .	. .	45.2	47.6	52.3	54.5	57.4	48 42.75	— 0.03	— 3.85	— 3.85	4 48 38.87	— 0.04
	32	α Aurigæ. . . .	F.	59.4	3.0	5.2	14.0	16.9	19.8	28.7	30.7	34.5	7 16.91	+ 0.06	. .	— 3.85	5 7 13.12	— 0.19
	33	β Orionis. . . .	F.	14.2	16.9	18.5	24.6	26.5	28.7	35.0	36.4	39.0	8 26.64	— 0.29	— 3.83	— 3.85	5 8 22.50	— 0.02
	34	β Tauri	F.	1.2	4.2	6.0	13.0	15.3	17.6	24.7	26.3	29.2	18 15.28	— 0.06	— 3.87	— 3.85	5 18 11.37	0.00
	35	δ Orionis. . . .	F.	19.2	21.9	23.3	29.4	31.4	33.5	39.5	41.2	43.5	25 31.43	— 0.23	— 3.82	— 3.85	5 25 27.35	— 0.06
	36	α Orionis. . . .	F.	5.6	8.1	9.5	15.8	17.9	19.9	26.2	27.6	30.3	48 17.88	— 0.18	— 3.87	— 3.85	5 48 13.85	— 0.01
3	37	Sun I, N. . . .	F.	48.7	51.4	53.1	57.5	2.0	6.5	10.9	12.5	15.4	51 2.00	— 0.09	. .	— 3.86	6 50 58.05	. .
	38	Sun II, S. . . .	F.	6.0	8.9	10.5	17.2	19.5	21.6	28.3	29.9	32.7	53 19.40	— 0.09	. .	— 3.86	6 53 15.45	. .
4	39	Polaris	S.	. .	. .	. .	. .	. .	. .	19.5	23.0	8.0	11 39.07	+11.88	. .	— 4.09	1 11 46.86	— 3.51
	40	o Piscium . . .	S.	30.4	33.0	34.6	40.8	42.9	45.0	51.1	52.7	55.2	38 42.86	— 0.24	— 4.09	— 4.09	1 38 38.53	— 0.03
	41	β Arietis	S.	. .	. .	34.4	36.5	38.7	41.0	43.2	. .	. .	47 38.76	— 0.14	— 4.01	— 4.09	1 47 34.53	— 0.06
	42	γ Andromedæ . .	S.	50.6	54.1	56.0	4.3	7.0	10.0	18.1	20.0	23.4	56 7.06	0.00	. .	— 4.09	1 56 2.97	— 0.07
	43	α Arietis	S.	. .	. .	59.8	2.0	4.2	6.5	11.0	12.5	15.3	0 2.02	— 0.12	— 4.02	— 4.09	1 59 57.81	— 0.06
	44	α Tauri	S.	25.6	28.4	30.0	36.3	38.5	40.6	47.0	48.5	51.3	28 38.47	— 0.18	— 4.12	— 4.10	4 28 34.19	0.00
	45	ι Aurigæ. . . .	S.	28.5	31.5	33.3	40.6	43.2	45.4	52.8	54.6	57.8	48 43.08	— 0.03	— 4.12	— 4.10	4 48 38.95	— 0.02
5	46	Sun I, N. . . .	S.	3.6	6.4	8.0	14.7	16.7	19.2	25.7	27.3	30.1	59 16.86	— 0.12	. .	— 4.11	6 59 12.63	. .
	47	Sun II, S. . . .	S.	20.6	23.5	25.0	31.7	34.0	36.2	42.8	44.6	47.2	1 33.96	— 0.12	. .	— 4.11	7 1 29.73	. .
	48	Mercury, C. . .	S.	. .	. .	. .	. .	. .	12.3	16.9	18.6	21.4	54 8.99	— 0.12	. .	— 4.12	7 54 4.75	+ 0.02

13, 18. Bisections at wires V and VI.
28. Bisections at sets B and D.
30. Bisections at set C.
39. Bisections at wires D_1, D_2, and D_3.
42. Telescope micrometer reading decreased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	′ ″	″
1	329 34	11.6	12.1	3.4	9.5	32	. .	721	. .	751	. .	51.2	30 21 10.6	. .	+ 32.2	81 28 4.0	0.0
2	327 8	10.5	9.6	1.3	5.5	35	. .	045	. .	081	. .	51.2	32 47 43.9	. .	+ 35.4	83 54 40.5	+ 0.8
3	49 56	13.1	15.0	6.7	10.0	33	. .	. .	. .	. .	680	51.2	309 59 27.6	592	— 1 5.5	1 4 43.3	— 0.6
4	354 0	11.2	8.8	1.0	4.3	35	. .	700	. .	760	. .	50.4	5 55 53.2	500	+ 5.6	57 2 20.0	— 0.5
5	312 42	13.5	11.6	4.2	10.5	34	. .	632	. .	618	. .	50.4	47 13 39.5	490	+ 58.0	98 20 58.7	— 0.2
6	349 32	18.8	18.5	9.8	14.3	34	. .	264	. .	220	. .	50.4	10 23 39.3	. .	+ 9.9	61 30 10.4	— 0.2
7	320 40	8.8	9.3	1.0	6.5	38	. .	436	. .	410	. .	50.4	39 16 34.4	485	+ 43.9	90 23 39.5	— 1.4
8	319 46	14.2	14.0	5.5	11.1	35	. .	730	. .	720	. .	50.4	40 9 57.7	482	+ 45.2	91 17 4.1	+ 0.5
9	344 18	12.5	10.8	1.7	7.8	35	045	135	. .	. .	. .	50.4	15 37 43.3	. .	+ 14.9	66 44 19.4	
10	343 46	14.9	12.5	3.7	9.8	33	. .	. .	. .	290	260	50.4	16 9 19.2	450	+ 15.4	67 15 55.8	
11	326 36	10.8	10.0	3.1	7.3	35	. .	956	. .	950	. .	50.4	33 19 57.9	. .	+ 34.9	84 26 54.0	0.0
12	349 22	10.2	9.4	2.2	6.2	33	. .	872	. .	852	. .	50.4	10 33 25.1	438	+ 9.9	61 39 56.2	+ 0.7
13	312 56	13.4	13.5	4.8	10.0	32	. .	. .	190	208	. .	50.4	46 59 2.8	415	+ 56.6	98 6 20.6	+ 1.8
14	348 12	18.6	18.9	10.0	12.7	37	. .	825	. .	810	. .	50.8	11 44 34.3	. .	+ 11.3	62 51 6.8	+ 0.4
15	327 52	15.2	15.2	5.3	8.0	33	. .	082	. .	058	. .	50.8	32 3 17.0	. .	+ 34.1	83 10 12.3	+ 0.2
16	325 54	15.9	15.0	5.3	10.8	32	. .	600	. .	530	. .	50.8	34 1 10.1	550	+ 36.8	85 8 8.1	+ 0.2
17	296 56	22.0	20.3	11.3	17.5	39	. .	. .	. .	242	230	50.8	63 0 58.3	. .	+ 1 46.5	114 9 6.0	— 7.4
18	295 20	19.0	18.3	11.8	14.3	37	. .	. .	410	460	. .	50.8	64 36 28.8	. .	+ 1 54.1	115 44 44.1	— 8.8
19	300 32	17.3	16.3	6.8	12.0	33	. .	600	. .	614	. .	50.8	59 23 27.3	. .	+ 1 31.8	110 31 20.3	— 7.3
20	295 48	13.5	13.3	3.6	8.6	39	. .	455	. .	365	. .	50.8	64 8 53.1	. .	+ 1 52.0	116 17 6.3	— 7.9
21																	
22																	
23	302 54	10.2	10.0	1.0	5.2	36	. .	755	. .	765	. .	50.8	57 2 9.3	. .	+ 1 24.0	108 9 54.5	— 6.1
24	296 14	12.5	12.4	3.2	7.5	35	. .	062	. .	118	. .	50.8	63 41 45.9	. .	+ 1 49.9	114 49 57.0	— 7.4
25	310 46	15.2	14.5	5.2	10.5	39	. .	880	. .	878	. .	50.8	49 11 2.0	560	+ 1 3.2	100 18 26.4	+ 3.1
26	14 12	18.2	19.9	9.5	12.4	36	650	. .	. .	. .	666	50.8	345 44 17.1	. .	— 13.9	36 50 24.4	+ 5.8
27	14 12	18.2	19.9	9.5	12.4	30	. .	980	. .	990	. .	50.8	345 42 49.6	. .	— 13.9	36 48 56.9	+ 5.8
28	351 14	14.9	15.3	6.5	8.1	37	008	. .	. .	. .	990	50.8	8 42 17.7	. .	+ 8.4	59 48 47.3	+ 2.7
29	351 4	13.5	14.9	5.5	6.9	35	. .	356	. .	380	. .	50.8	8 51 51.8	. .	+ 8.5	59 58 21.5	+ 2.7
30	43 16	17.5	20.4	11.0	14.8	34	610	. .	. .	. .	650	50.8	316 39 46.0	. .	— 51.6	7 45 15.6	— 0.3
31	354 0	5.1	2.8	25.5	0.0	36	. .	062	. .	074	. .	50.7	5 55 53.2	496	+ 5.6	57 2 20.0	— 0.5
32	6 54	4.1	4.0	26.4	0.6	36	. .	090	. .	084	. .	50.7	353 1 54.0	. .	— 6.6	44 8 8.6	+ 0.3
33	312 42	9.0	6.6	29.3	5.5	34	. .	. .	. .	954	940	50.7	47 13 39.8	486	+ 58.0	98 20 59.0	+ 0.3
34	349 32	5.7	3.0	26.5	0.2	35	. .	. .	. .	210	168	50.7	10 23 40.2	. .	+ 9.8	61 30 11.2	— 0.6
35	320 40	9.9	5.1	28.3	3.7	38	. .	064	. .	076	. .	50.7	39 16 27.1	476	+ 43.8	90 23 32.1	— 8.7
36																	
37	344 14	18.3	18.4	10.1	12.1	38	. .	478	. .	. .	. .	50.7	15 42 44.1	438	+ 14.9	66 49 20.2	
38	343 42	17.4	18.9	9.1	12.2	36	. .	. .	. .	598	596	50.7	16 14 14.8	. .	+ 15.5	67 20 51.5	
39	49 38	3.4	. .	27.6	. .	33	. .	. .	720	670	635	52.5	310 17 21.6	. .	— 1 4.9	1 22 37.9	— 1.0
40	329 34	19.2	. .	10.4	. .	36	. .	470	. .	500	. .	52.5	30 22 16.8	. .	+ 32.3	81 29 10.3	— 0.4
41	341 14	15.5	15.9	6.0	12.0	37	. .	. .	. .	360	374	52.5	18 42 26.3	. .	+ 18.6	69 49 6.1	— 0.5
42	2 46	. .	23.1	. .	17.7	38	. .	880	. .	908	. .	52.5	357 10 56.4	. .	— 2.7	48 17 14.9	— 9.4
43	343 54	20.7	21.6	11.1	17.1	35	. .	. .	. .	. .	377	52.5	16 2 1.1	. .	+ 15.8	67 8 38.1	— 0.6
44	337 18	12.3	10.5	1.8	8.2	36	. .	810	. .	821	. .	52.5	22 38 13.7	. .	+ 23.1	73 44 58.0	+ 0.6
45	354 0	10.0	9.8	1.1	6.8	35	. .	600	. .	610	. .	52.5	5 55 53.9	552	+ 5.7	57 2 20.8	+ 0.3
46	344 2	9.4	8.9	29.5	4.7	35	237	327	. .	. .	. .	52.5	15 53 48.6	. .	+ 15.4	67 0 25.2	
47	343 30	6.0	5.0	25.3	29.0	33	. .	. .	. .	757	721	52.5	16 25 19.5	. .	+ 15.9	67 31 56.6	
48																	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
3	. .	. .	79.0
37	29.980	88.0	97.7
43	29.964	79.0	
46	. .	. .	90.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
9	— 2.4	+ 15 48.2	. .	+ 15 45.8
10	— 2.4	— 15 48.2	. .	— 15 50.6
37	— 2.3	+ 15 45.6	. .	+ 15 43.3
38	— 2.4	— 15 45.6	. .	— 15 48.0
46	— 2.4	+ 15 45.7	. .	+ 15 43.3
47	— 2.4	— 15 45.7	. .	— 15 48.1

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
July 5	1	α Leonis	S.	24.7	27.2	28.9	35.2	37.2	39.2	45.7	47.1	49.8	1 37.22	— 0.20	— 4.09	— 4.13	10 1 32.89	— 0.08
	2	γ Leonis	S.	45.8	48.4	50.2	. .	. .	. .	7.6	9.2	11.9	12 58.85	— 0.14	— 4.17	— 4.13	10 12 54.58	+ 0.02
	3	γ^2 Leonis	S.	. .	. .	54.7	57.0	59.1	1.3	3.5	. .	. .	12 59.12	— 0.14	. .	— 4.13	10 12 54.85	. .
	4	θ Virginis	S.	12.3	14.9	16.5	22.6	24.6	26.7	32.8	34.3	36.9	3 24.62	— 0.36	— 4.14	— 4.14	13 3 20.12	— 0.04
	5	Polaris, S. P.	S.	. .	. .	54.5	28.5	3.5	. .	. .	. .	. .	12 3.83	—12.05	. .	— 4.14	1 11 47.64	— 3.17
	6	α Virginis	S.	19.9	22.5	24.1	30.3	32.4	34.5	40.7	42.2	44.9	18 32.39	— 0.41	— 4.10	— 4.14	13 18 27.84	— 0.06
	7	η Ursæ Majoris	S.	15.9	19.8	22.2	31.7	34.9	38.1	47.7	50.0	54.0	42 34.92	+ 0.14	. .	— 4.14	13 42 30.92	+ 0.06
	8	η Bootis	S.	27.7	30.4	32.0	38.5	40.7	42.8	49.4	50.8	53.6	48 40.66	— 0.16	— 4.12	— 4.14	13 48 36.36	— 0.07
	9	η Herculis	S.	20.9	24.1	26.0	34.1	36.7	39.2	47.1	49.1	52.4	38 36.62	+ 0.02	— 4.20	— 4.15	16 38 32.49	+ 0.06
	10	B. A. C. 5666	S.	31.2	34.1	35.9	42.9	45.3	47.6	54.7	56.5	59.4	45 45.29	— 0.07	. .	— 4.15	16 45 41.07	— 1.84
	11	κ Ophiuchi	S.	30.2	32.9	34.6	40.7	42.8	44.8	51.2	52.8	55.4	51 42.82	— 0.24	— 4.20	— 4.15	16 51 38.43	+ 0.09
	12	29 Ophiuchi	S.	15.8	18.5	20.1	26.5	28.7	30.9	37.3	39.1	41.8	54 28.74	— 0.49	. .	— 4.15	16 54 24.10	— 1.93
	13	α^1 Herculis	S.	42.4	45.0	46.5	. .	. .	. .	3.3	5.0	7.6	8 54.97	— 0.20	— 4.24	— 4.16	17 8 50.61	+ 0.11
	14	α^2 Herculis	S.	. .	. .	51.2	53.2	55.2	57.3	59.5	. .	. .	8 55.28	— 0.20	. .	— 4.16	17 8 50.92	. .
	15	ξ Ophiuchi	S.	. .	. .	22.3	24.6	26.8	29.0	31.2	. .	. .	13 26.78	— 0.51	. .	— 4.16	17 13 22.11	— 2.03
	16	44 Piscium	S.	. .	. .	. .	. .	. .	. .	3.9	5.5	8.0	19 55.76	— 0.25	. .	— 4.19	0 19 51.32	— 0.81
	17	α Cassiopeæ	S.	. .	. .	12.5	16.2	19.9	23.6	27.2	. .	. .	33 19.88	+ 0.34	. .	— 4.19	0 33 16.03	— 0.03
	18	β Ceti	S.	2.3	5.0	6.6	13.0	15.2	17.4	24.0	25.5	28.2	37 15.24	— 0.44	— 4.21	— 4.19	0 37 10.61	+ 0.07
	19	δ Piscium	S.	. .	. .	3.6	5.6	7.7	9.8	11.8	. .	. .	52 7.70	— 0.20	. .	— 4.19	0 52 3.31	— 0.68
	20	ε Piscium	S.	10.8	13.3	14.8	21.0	23.0	25.2	31.4	33.0	35.6	56 23.12	— 0.20	— 4.21	— 4.19	0 56 18.73	+ 0.04
	21	ζ Piscium		55.3	57.9	59.5	5.5	7.6	9.8	15.9	17.4	20.0	7 7.66	— 0.20	. .	— 4.19	1 7 3.27	— 0.53
	22	Polaris	S.	. .	. .	. .	15.5	40.0	4.0	30.5	. .	. .	11 39.88	+13.78	. .	— 4.19	1 11 49.47	— 1.77
	23	β Arietis	S.	25.9	28.6	30.2	36.9	38.9	41.0	47.6	49.2	52.0	47 38.92	— 0.09	— 4.19	— 4.19	1 47 34.64	+ 0.02
	24	α Arietis	S.	48.9	51.6	53.3	0.0	2.1	4.4	11.0	12.7	15.4	0 2.16	— 0.07	— 4.17	— 4.19	1 59 57.90	— 0.01
	25	α Tauri	E.	25.8	28.5	30.2	36.6	. .	40.8	47.0	48.7	51.4	28 38.62	— 0.26	— 4.17	— 4.34	4 28 34.02	— 0.19
	26	ι Aurigæ	E.	28.7	31.8	33.8	41.0	43.4	45.8	53.3	55.0	58.0	48 43.42	— 0.12	— 4.34	— 4.34	4 48 39.96	— 0.04
	27	α Aurigæ	E.	. .	. .	11.6	14.7	17.7	20.6	23.5	. .	. .	7 17.62	+ 0.01	. .	— 4.34	5 7 13.29	— 0.01
	28	β Orionis	E.	15.1	17.6	19.2	25.3	27.4	29.5	35.4	37.0	39.8	8 27.37	— 0.47	— 4.31	— 4.34	5 8 22.56	— 0.03
	29	β Tauri	E.	2.0	4.9	6.6	13.7	16.0	18.3	25.2	27.2	29.9	18 15.98	— 0.16	— 4.40	— 4.34	5 18 11.48	+ 0.04
	30	δ Orionis	E.	. .	. .	28.2	30.1	32.2	34.3	36.2	. .	. .	25 32.20	— 0.40	— 4.36	— 4.34	5 25 27.46	— 0.01
	31	ε Orionis	E.	34.8	37.5	39.1	45.2	. .	49.4	55.4	57.0	59.7	29 47.26	— 0.41	— 4.37	— 4.34	5 29 42.51	+ 0.02
	32	α Orionis	E.	6.2	8.6	10.3	16.4	18.5	20.5	26.8	28.3	31.0	48 18.51	— 0.34	— 4.29	— 4.34	5 48 13.83	— 0.08
6	33	Sun I, N.	E.	10.6	13.1	14.8	21.5	23.7	25.9	32.4	34.1	36.7	3 23.64	— 0.21	. .	— 4.35	7 3 19.08	. .
	34	Sun II, S.	E.	27.3	30.1	31.7	38.3	40.6	43.0	49.5	51.3	53.9	5 40.63	— 0.21	. .	— 4.35	7 5 36.07	. .
	35	α Coronæ Borealis	E.	8.4	11.3	13.0	17.5	22.1	26.8	31.4	33.1	36.0	29 22.18	— 0.10	— 4.42	— 4.39	15 29 17.69	+ 0.03
	36	42 Libræ	E.	36.3	39.3	40.9	47.5	49.7	51.7	58.5	0.3	3.0	32 49.69	— 0.57	. .	— 4.39	15 32 44.73	— 1.62
	37	κ Libræ	E.	. .	. .	36.7	38.9	41.1	43.2	45.4	. .	. .	34 41.06	— 0.52	. .	— 4.39	15 34 36.15	— 1.69
	38	η Libræ	E.	46.4	49.2	50.6	57.0	59.0	1.2	7.5	9.2	11.9	36 59.11	— 0.48	. .	— 4.39	15 36 54.24	— 1.67
	39	ε Serpentis	E.	. .	. .	28.4	30.4	32.5	34.6	36.6	. .	. .	44 32.50	— 0.29	— 4.45	— 4.39	15 44 27.82	+ 0.06
	40	B. A. C. 5253	E.	8.7	11.6	13.3	20.1	22.1	24.5	31.0	32.8	35.6	46 22.19	— 0.58	. .	— 4.39	15 46 17.22	— 1.70
	41	π Scorpii	E.	59.8	2.7	4.6	11.3	13.5	15.9	22.8	24.5	27.4	51 13.61	— 0.60	. .	— 4.39	15 51 8.62	— 1.98
	42	49 Libræ	E.	. .	. .	10.9	13.0	15.1	17.3	19.5	. .	. .	53 15.16	— 0.49	. .	— 4.39	15 53 10.28	— 1.66
	43	ω^2 Scorpii	E.	47.6	50.6	52.2	58.5	0.8	3.0	9.5	11.0	13.8	0 0.78	— 0.54	. .	— 4.39	15 59 55.85	— 1.73
	44	δ Ophiuchi	E.	32.5	35.1	36.7	42.8	44.8	46.9	52.8	54.5	57.0	7 44.79	— 0.36	— 4.43	— 4.39	16 7 40.04	+ 0.06
	45	19 Scorpii	E.	. .	. .	58.6	0.7	2.9	5.3	7.7	. .	. .	13 3.04	— 0.58	. .	— 4.39	16 12 58.07	— 1.85
	46	σ Scorpii	E.	. .	. .	. .	. .	. .	. .	40.5	42.1	45.0	13 31.43	— 0.59	. .	— 4.39	16 13 26.45	— 1.87
	47	χ Ophiuchi	E.	. .	34.7	39.0	41.2	. .	. .	47.7	51.8	. .	19 43.30	— 0.51	. .	— 4.39	16 19 38.40	— 1.80
	48	22 Scorpii	E.	19.4	22.2	24.1	30.8	33.0	35.2	42.0	43.7	46.5	22 32.99	— 0.59	. .	— 4.39	16 22 28.01	— 1.89
	49	κ Ophiuchi	E.	30.6	33.3	34.8	41.0	43.0	45.1	51.4	53.0	55.5	51 43.08	— 0.25	— 4.45	— 4.39	16 51 38.44	+ 0.10

27, 37, 39. Bisections at sets B and D.
37. Telescope micrometer reading increased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	333 38	10.3	9.6	1.5	5.9	34	. .	700	. .	710	. .	52.5	26 17 39.8	. .	+ 27.0	77 24 28.0	+ 2.6
2	341 32	17.7	17.7	6.8	13.2	35	. .	600	. .	640	. .	52.5	18 24 1.0	. .	+ 17.9	69 30 40.1	+ 3.1
3	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . . .	473			
4	316 12	21.6	21.4	12.5	17.3	36	. .	035	. .	063	. .	50.8	43 44 10.0	500	+ 51.6	94 51 22.8	+ 1.1
5																	
6	310 34	26.1	24.6	15.5	22.0	36	. .	. .	. .	133	167	50.8	49 22 15.3	. .	+ 1 3.0	100 29 39.5	+ 1.2
7	10 58	9.2	11.0	2.7	5.2	30	. .	040	. .	040	. .	50.8	348 56 27.1	. .	— 10.6	40 2 37.7	— 1.4
8	340 4	20.7	19.9	11.1	14.9	30	. .	960	. .	980	. .	50.8	19 50 50.7	534	+ 19.6	70 57 31.5	+ 0.9
9	0 12	10.4	10.0	0.8	3.5	34	. .	370	. .	378	. .	50.8	359 43 32.6	. .	— 0.3	50 49 53.5	+ 0.7
10	351 4	18.1	17.9	9.6	12.8	35	. .	033	. .	037	. .	50.8	8 51 51.1	. .	+ 8.6	59 58 20.9	+ 3.3
11																	
12	302 22	18.8	17.3	8.5	14.9	35	. .	430	. .	410	. .	50.8	57 33 57.0	. .	+ 1 26.4	108 41 44.6	— 5.0
13																	
14																	
15	300 6	15.7	14.8	5.4	10.7	37	. .	757	. .	719	. .	50.8	59 50 29.4	. .	+ 1 34.6	10 58 25.2	— 4.6
16	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . . .	665			
17	16 52	13.1	. .	5.2	. .	35	. .	784	. .	790	. .	54.2	343 4 3.1	. .	— 17.0	34 10 7.3	+ 1.7
18	302 22	19.8	. .	8.5	. .	32	. .	910	. .	900	. .	54.2	57 33 23.2	666	+ 1 27.6	108 41 12.0	+ 2.8
19	327 56	19.2	. .	9.9	. .	34	. .	. .	. .	275	255	54.2	31 59 44.6	. .	+ 34.9	83 6 40.7	+ 4.1
20	328 14	21.0	18.6	9.8	16.2	31	. .	. .	. .	360	350	54.2	31 40 59.7	666	+ 34.4	82 47 55.3	+ 1.5
21	327 56	13.2	18.4	3.5	10.9	32	. .	330	. .	308	. .	54.2	31 59 9.6	. .	+ 34.8	83 6 5.6	+ 3.9
22	49 38	5.8	. .	29.8	. .	33	. .	750	723	737	. .	54.2	310 17 24.5	. .	— 1 5.7	1 22 40.0	+ 1.2
23	341 14	12.2	11.0	1.3	8.0	37	. .	665	. .	665	. .	54.2	18 42 28.4	654	+ 18.8	69 49 8.4	+ 2.0
24	343 54	13.2	11.3	4.3	10.0	35	. .	848	. .	850	. .	54.2	16 2 2.1	. .	+ 16.0	67 8 39.3	+ 0.7
25	337 18	12.8	11.0	4.2	8.7	36	. .	770	. .	782	. .	52.2	22 38 13.7	587	+ 22.9	73 44 57.8	+ 0.5
26	354 0	9.3	7.7	0.8	4.7	35	. .	720	. .	696	. .	52.2	5 55 53.8	. .	+ 5.7	57 2 20.7	+ 0.2
27	6 54	11.7	12.5	4.2	7.5	35	418	. .	. .	. .	430	52.2	353 1 52.7	. .	— 6.7	44 8 7.2	— 1.3
28	312 42	10.7	10.0	2.8	8.4	34	. .	414	. .	456	. .	52.2	47 13 36.4	. .	+ 59.2	98 20 56.8	— 1.3
29	349 32	10.8	9.3	1.6	5.6	34	. .	666	. .	690	. .	52.2	10 23 39.2	. .	+ 10.1	61 30 10.5	0.0
30	320 40	10.0	8.3	0.4	5.1	38	. .	. .	. .	395	415	52.2	39 16 35.3	. .	+ 44.8	90 23 41.3	+ 1.0
31	319 46	18.0	17.0	8.0	13.0	35	. .	364	. .	406	. .	52.2	40 9 57.0	. .	+ 46.1	91 17 4.3	+ 1.3
32	328 26	13.7	10.6	3.2	7.5	36	. .	580	. .	630	. .	52.2	31 30 10.6	558	+ 33.4	82 37 5.2	+ 1.2
33	343 56	11.5	8.4	29.0	4.5	35	640	720	. .	. .	. .	52.2	15 59 53.8	. .	+ 15.5	67 6 30.5	
34	343 24	10.5	7.1	27.8	3.7	34	. .	. .	. .	036	062	52.2	16 31 27.3	512	+ 16.0	67 38 4.5	
35	348 12	14.0	13.5	3.8	7.5	38	. .	035	. .	035	. .	52.2	11 44 33.7	. .	+ 11.5	62 51 6.4	+ 0.6
36	297 40	11.5	10.6	1.7	7.0	36	. .	162	. .	178	. .	52.2	62 16 2.7	. .	+ 1 44.5	113 24 8.4	—10.1
37	301 48	12.8	10.2	1.2	6.8	35	035	. .	. .	. .	015	52.2	58 8 0.7	. .	+ 1 28.5	109 15 50.4	— 8.9
38	305 48	12.7	10.6	1.0	8.1	36	. .	990	. .	980	. .	52.2	54 8 15.7	605	+ 1 16.2	105 15 53.1	— 7.9
39	325 54	11.4	10.5	1.4	6.8	32	720	. .	. .	. .	730	52.2	34 1 9.8	. .	+ 37.2	85 8 8.2	+ 0.7
40	296 56	13.1	12.3	2.8	9.5	39	. .	680	. .	670	. .	52.2	63 0 58.3	. .	+ 1 47.9	114 9 7.4	—10.0
41	295 20	10.3	8.9	0.0	6.0	37	. .	930	. .	875	. .	52.2	64 36 27.9	. .	+ 1 55.7	115 44 44.8	— 8.4
42	304 54	15.5	13.5	4.0	10.2	34	. .	. .	. .	510	500	52.2	55 1 40.2	. .	+ 1 18.7	106 9 20.1	— 6.4
43	300 32	12.7	10.9	1.2	7.7	33	. .	852	. .	890	. .	52.2	59 23 27.8	. .	+ 1 33.0	110 31 22.0	— 7.3
44	317 42	12.0	10.7	2.0	6.7	38	. .	510	. .	530	. .	52.2	42 14 39.1	. .	+ 50.1	93 21 50.4	+ 2.5
45	297 12	14.4	13.6	4.0	8.9	33	990	920	. .	. .	. .	52.2	62 43 31.2	. .	+ 1 46.7	113 51 39.1	— 7.5
46	295 48	15.7	15.0	5.5	11.0	39	. .	. .	. .	142	158	52.2	64 8 52.5	. .	+ 1 53.4	115 17 7.1	— 7.8
47	302 54	11.0	9.8	1.0	6.0	36	. .	660	. .	600	. .	52.2	57 2 9.1	610	+ 1 25.0	108 9 55.3	— 6.1
48	296 14	12.5	12.8	4.2	9.2	35	. .	010	. .	000	. .	52.2	63 41 46.8	. .	+ 1 51.3	114 49 59.3	— 7.5
49	330 38	14.8	16.0	7.0	10.3	37	. .	890	. .	850	. .	52.2	29 18 33.4	. .	+ 31.0	80 25 25.6	+ 0.2

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
4	. .	. .	89.0
8	. .	. .	86.0
20	30.087	76.3	72.7

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
33	— 2.4	+ 15 47.0	. .	+ 15 44.6
34	— 2.4	— 15 47.0	. .	— 15 49.4

For summary of the elements of reduction see page 3.

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
July 6	1	29 Ophiuchi . . .	E.	16.0	18.8	20.4	27.0	29.0	31.1	37.7	39.2	42.0	54 29.02	— 0.52	. .	— 4.39	16 54 24.11	— 1.94
	2	ε Ursæ Minoris. .	E.	. .	. .	49.0	4.0	19.5	35.0	50.5	. .	. .	59 19.60	+ 2.31	. .	— 4.39	16 58 17.52	— 0.30
8	3	α Coronæ Borealis .	Ha.	8.3	11.3	12.8	19.7	22.1	24.4	31.2	33.0	35.9	29 22.08	— 0.05	— 4.39	— 4.42	15 29 17.61	— 0.03
	4	α Serpentis . . .	Ha.	51.7	54.4	55.8	1.9	4.0	6.0	12.3	13.8	16.4	38 4.03	— 0.28	— 4.41	— 4.42	15 37 59.34	+ 0.01
	5	Lacaille 6716 . .	Ha.	22.0	25.5	27.3	35.2	38.0	40.7	48.6	50.5	53.8	2 37.96	— 0.92	. .	— 4.42	16 2 32.62	— 2.07
	6	Anonymous . .	Ha.	19.1	21.8	23.5	30.0	32.0	34.1	40.7	42.2	45.0	12 32.04	— 0.51	. .	— 4.42	16 12 27.13	— 1.78
	7	B. A. C. 5459 . .	Ha.	. .	. .	5.3	9.3	13.4	17.5	21.5	. .	. .	15 13.40	+ 0.57	. .	— 4.42	16 15 9.55	— 2.39
	8	B. A. C. 5503 . .	Ha.	31.8	36.0	38.5	48.4	51.8	55.0	5.0	7.5	11.6	21 51.73	+ 0.34	. .	— 4.42	16 19 48.35	— 2.11
	9	B. A. C. 5560 . .	Ha.	18.1	23.6	26.9	39.3	43.5	47.9	0.7	3.7	8.9	30 43.62	+ 0.61	. .	— 4.42	16 30 39.81	— 2.53
	10	B. A. C. 5574 . .	Ha.	55.7	0.0	2.4	. .	. .	. .	29.7	32.2	36.5	33 16.08	+ 0.37	. .	— 4.42	16 33 12.03	— 2.20
	11	B. A. C. 5575 . .	Ha.	. .	. .	12.0	15.3	18.6	22.1	25.5	. .	. .	33 18.70	+ 0.37	. .	— 4.42	16 33 14.65	— 2.20
	12	29 Ophiuchi . . .	Ha.	16.2	18.8	20.3	26.7	28.9	31.0	37.6	39.2	42.0	54 28.97	— 0.58	. .	— 4.42	16 54 23.97	— 1.94
	13	B. A. C. 5752 . .	Ha.	. .	. .	59.4	3.4	7.3	10.8	14.5	. .	. .	57 7.08	+ 0.47	. .	— 4.42	16 57 3.13	— 2.42
	14	B. A. C. 5828 . .	Ha.	39.4	42.1	43.8	50.5	52.8	55.0	1.9	3.4	6.3	9 52.80	— 0.08	. .	— 4.42	17 9 48.30	— 1.85
	15	B. A. C. 5842 . .	Ha.	27.4	30.6	32.5	39.7	42.2	44.6	51.9	53.7	56.8	12 42.16	+ 0.02	. .	— 4.42	17 12 37.76	— 1.93
	16	μ Herculis . . .	Ha.	19.7	22.5	24.3	31.0	33.5	35.7	42.7	44.5	47.3	41 33.47	— 0.05	— 4.51	— 4.42	17 41 29.00	+ 0.09
	17	B. A. C. 6079 . .	Ha.	3.1	7.8	10.6	21.8	25.6	29.3	40.3	43.3	48.0	51 25.53	+ 0.47	. .	— 4.42	17 51 21.58	— 2.58
	18	γ^2 Sagittarii . . .	Ha.	28.5	31.3	33.2	40.3	42.6	45.0	52.2	54.0	56.8	57 42.66	— 0.75	— 4.42	— 4.42	17 57 37.49	+ 0.01
	19	B. A. C. 6185 . .	Ha.	39.6	44.2	46.7	57.2	0.6	4.3	14.9	17.3	21.6	8 0.71	+ 0.40	. .	— 4.42	18 7 56.69	— 2.50
	20	B. A. C. 6223 . .	Ha.	6.2	9.0	10.8	17.5	19.2	22.0	28.7	30.3	33.2	13 19.71	+ 0.01	. .	— 4.42	18 13 15.30	— 1.97
	21	B. A. C. 6256 . .	Ha.	10.9	13.8	15.6	22.7	25.1	27.6	34.7	36.5	39.3	19 25.13	— 0.77	. .	— 4.42	18 19 19.94	— 2.40
	22	B. A. C. 6289 . .	Ha.	. .	. .	5.4	9 0	13.0	17.1	24.9	27.9	32.8	22 9.20	+ 0.53	. .	— 4.42	18 22 5.31	— 2.72
	23	α Lyræ	Ha.	27.0	30.3	32.4	40.1	42.7	45.2	53.1	55.0	58.4	32 42.69	+ 0.10	— 4.36	— 4.42	18 32 38.37	— 0.04
	24	51 Cephei, S. P. .	Ha.	. .	. .	3.0	18.5	37.5	57.5	11.5	. .	. .	39 37.60	. .	. .	. .	. . . .	. .
	25	λ Aquarii . . .	S.	50.0	52.7	54.3	0.5	2.6	4.7	10.8	12.4	15.0	46 2.56	— 0.49	— 4.44	— 4.40	22 45 57.67	+ 0.12
	26	α Piscis Australis .	S.	27.0	30.0	31.8	39.0	41.3	43.6	50.8	52.6	55.4	50 41.28	— 0.78	— 4.39	— 4.40	22 50 36.10	+ 0.03
	27	φ Aquarii . . .	S.	35.5	38.0	39.6	45.8	47.8	49.9	56.0	57.5	0.2	7 47.81	— 0.48	. .	— 4.40	23 7 42.93	— 1.35
	28	96 Aquarii . . .	S.	39.6	42.3	43.8	47.9	52.0	56.0	0.1	1.8	4.4	12 51.99	— 0.47	. .	— 4.40	23 12 47.12	— 1.32
	29	κ Piscium . . .	S.	16.2	18.7	20.2	26.3	28.3	30.4	36.6	38.2	40.7	20 28.40	— 0.40	. .	— 4.40	23 20 23.60	— 1.25
	30	16 Piscium . . .	S.	45.2	47.8	49.4	55.5	57.5	59.5	5.8	7.3	9.7	29 57.52	— 0.39	. .	— 4.40	23 29 52.73	— 1.19
	31	λ Piscium . . .	S.	24.6	27.3	28.8	34.9	36.9	39.0	45.1	46.6	49.2	35 36.93	— 0.39	. .	— 4.40	25 35 32.14	— 1.16
	32	21 Piscium . . .	S.	47.9	50.5	52.1	58.2	0.1	2.2	8.3	9.9	12.5	43 0.19	— 0.40	. .	— 4.40	23 42 55.39	— 1.13
	33	27 Piscium . . .	S.	0.9	3.5	5.0	11.1	13.1	15.3	21.4	23.0	25.5	52 13.20	— 0.45	. .	— 4.40	23 52 8.35	— 1.09
	34	33 Piscium . . .	S.	. .	. .	. .	. .	. .	. .	1.2	2.8	5.3	58 52.99	— 0.47	. .	— 4.40	23 58 48.12	— 1.06
	35	α Cassiopeæ. . .	S.	58.3	3.0	5.8	16.9	20.3	24.0	34.9	37.5	42.1	33 20.31	+ 0.34	. .	— 4.40	0 33 16.25	+ 0.05
	36	β Tauri	S.	2.1	5.1	6.7	13.7	16.0	18.4	25.2	26.9	29.9	18 16.00	— 0.15	— 4.36	— 4.41	5 8 11.44	— 0.07
9	37	Sun I, S. . . .	S.	28.4	31.2	33.0	39.7	41.8	44.2	50.7	52.4	55.2	15 41.84	— 0.23	. .	— 4.41	7 15 37.20	. .
	38	Sun II, N. . . .	S.	45.4	47.9	49.5	56.2	58.5	0.7	7.3	9.0	11.9	17 58.49	— 0.23	. .	— 4.41	7 17 53.85	. .
10	39	β^1 Scorpii. . . .	E.	. .	. .	. .	6.7	8.9	11.3	15.5	17.0	19.8	58 6.79	— 0.68	— 4.61	— 4.64	15 58 1.47	0.00
	40	Lacaille 6716 . .	E.	. .	. .	33.3	35.6	39.0	41.8	44.1	. .	. .	2 38.76	— 1.02	. .	— 4.64	16 2 33.10	— 2.02
	41	δ Ophiuchi . . .	E.	32.8	35.5	37.1	43.1	45.2	47.2	53.3	54.9	57.6	7 45.19	— 0.48	— 4.72	— 4.64	16 7 40.07	+ 0.10
	42	B. A. C. 5459 . .	E.	49.6	54.7	57.7	10.0	14.1	18.2	30.5	33.8	38.8	15 14.16	+ 0.46	. .	— 4.64	16 15 9.98	— 2.28
	43	α Scorpii. . . .	E.	27.3	30.2	31.9	38.6	41.0	43.3	50.0	51.8	54.5	21 40.96	— 0.78	— 4.55	— 4.64	16 21 35.54	— 0.10
	44	B. A. C. 5560 . .	E.	. .	. .	35.6	39.8	44.0	48.3	52.5	. .	. .	30 44.04	+ 0.50	. .	— 4.64	16 30 39.90	— 2.45
	45	η Herculis . . .	E.	21.2	24.5	26.6	34.4	37.1	39.6	47.6	49.5	52.8	38 37.03	+ 0.02	— 4.66	— 4.64	16 38 32.41	+ 0.03
	46	ε Ursæ Minoris . .	E.	. .	. .	49.0	4.0	19.0	34.0	49.5	. .	. .	59 19.10	+ 3.03	. .	— 4.64	16 59 17.49	+ 0.09
12	47	α Serpentis . . .	Ha.	52.0	54.7	56.0	2.3	4.3	6.4	12.7	14.1	16.6	38 4.34	— 0.38	— 4.64	— 4.61	15 37 59.35	+ 0.05
	48	ε Serpentis . . .	Ha.	20.6	23.0	24.6	30.7	32.8	34.8	41.0	42.5	45.0	44 32.78	— 0.41	— 4.65	— 4.61	15 44 27.76	+ 0.04

2. Bisections at set C.
7, 40. Bisections at sets B and D.
9. Bisections at wires II and III.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	302 22	13.5	11.5	3.2	7.2	35	. .	762	. .	802	. .	52.2	57 33 58.0	. .	+ 1 26.8	108 41 46.0	— 5.0
2	43 16	13.5	14.0	5.7	11.0	34	820	. .	. .	. .	830	52.2	316 39 45.6	. .	— 52.1	7 45 14.7	— 0.2
3	348 12	8.4	7.0	28.0	1.8	38	. .	375	. .	405	. .	53.4	11 44 34.5	610	+ 11.5	62 51 7.2	+ 1.7
4	327 52	8.0	6.5	27.5	2.7	33	. .	335	. .	335	. .	53.4	32 3 16.5	. .	+ 34.6	83 10 12.3	+ 0.8
5	281 20	0.8	28.5	19.0	25.8	39	. .	260	. .	115	. .	53.4	78 36 38.5	617	+ 4 27.0	129 47 26.7	—11.7
6	302 30	3.3	1.5	22.2	28.6	36	. .	435	. .	420	. .	53.4	57 25 59.1	. .	+ 1 26.6	108 33 46.9	— 6.4
7	21 6	10.7	11.4	2.2	5.2	35	. .	. .	. .	. .	600	53.4	338 49 55.1	. .	— 21.5	29 55 54.8	+ 8.5
8	13 2	7.2	8.6	29.6	4.0	33	. .	350	. .	350	. .	53.4	346 53 18.3	. .	— 12.9	37 59 26.6	+ 7.4
9	22 8	9.4	9.6	0.7	5.5	37	. .	430	450	. .	. .	53.4	337 48 22.6	. .	— 22.6	28 54 21.2	+ 7.8
10	14 12	8.6	9.3	1.0	4.7	37	. .	. .	. .	075	. .	53.4	345 44 16.6	. .	— 14.1	36 50 23.7	+ 7.0
11	14 12	8.6	9.3	1.0	4.7	31	. .	. .	. .	. .	285	53.4	345 42 48.2	. .	— 14.2	36 48 55.2	+ 7.0
12	302 22	6.0	3.9	25.0	0.6	36	. .	160	. .	165	. .	53.4	57 33 57.5	. .	+ 1 27.2	108 41 45.9	— 4.9
13	17 54	8.1	9.0	29.9	3.9	32	. .	. .	. .	990	925	53.4	342 1 13.0	628	— 18.0	33 7 16.2	+ 6.5
14	346 2	5.0	5.0	26.1	29.6	35	. .	770	. .	780	. .	53.4	13 53 51.9	. .	+ 13.7	65 0 26.8	+ 2.7
15	354 16	11.1	11.1	3.0	6.1	32	. .	450	. .	450	. .	53.4	5 39 7.3	. .	+ 5.5	56 45 34.0	+ 3.7
16	348 50	2.4	2.8	23.6	27.5	34	. .	850	. .	880	. .	53.4	11 5 35.6	627	+ 10.9	62 12 7.7	+ 0.5
17	17 56	10.0	10.1	1.0	5.0	37	. .	060	. .	075	. .	53.4	342 0 17.2	. .	— 18.1	33 6 20.3	+ 3.7
18	290 40	4.3	3.1	23.5	0.5	38	. .	820	. .	830	. .	53.4	69 16 37.4	. .	+ 2 25.8	120 25 24.4	— 1.7
19	15 16	10.0	10.0	2.1	5.6	31	. .	650	. .	745	. .	53.4	344 38 55.1	. .	— 15.3	35 45 1.0	+ 2.8
20	345 26	8.0	8.9	29.8	3.5	35	. .	610	. .	625	. .	53.4	14 29 53.1	640	+ 14.4	65 36 28.7	+ 1.6
21	289 28	4.3	3.6	23.6	0.7	33	. .	655	. .	675	. .	53.4	70 27 18.2	. .	+ 2 35.5	121 36 14.9	— 2.3
22	19 46	11.0	12.0	3.5	6.1	37	. .	. .	. .	090	045	53.4	340 10 19.2	. .	— 20.1	31 16 20.3	+ 1.5
23	359 42	6.6	7.8	29.1	2.5	34	. .	760	. .	815	. .	53.4	0 13 39.4	. .	+ 0.2	51 20 0.8	— 0.3
24	53 46	7.6	7.6	29.8	4.0	32	. .	940	890	950	. .	53.4	306 9 11.3	645	— 1 16.2	357 14 16.3	+ 1.2
25	312 48	8.8	8.0	29.2	5.4	36	. .	483	. .	457	. .	53.1	47 8 5.9	. .	+ 1 0.2	98 15 27.3	0.0
26	290 46	12.9	14.5	5.1	12.5	31	. .	646	. .	680	. .	53.1	69 8 57.0	668	+ 2 25.7	120 17 44.8	— 0.5
27	314 18	9.6	8.9	0.1	6.0	31	. .	590	. .	590	. .	53.1	45 36 51.8	672	+ 57.2	96 44 10.2	+ 8.1
28	315 14	10.8	12.4	4.4	9.8	35	. .	760	. .	730	. .	53.1	44 41 58.8	. .	+ 55.5	95 49 15.5	+ 7.9
29	321 36	15.0	15.0	5.9	12.6	33	. .	584	. .	610	. .	53.1	38 19 28.0	. .	+ 44.3	89 26 34.1	+ 6.0
30	322 26	12.5	14.0	5.3	11.6	32	. .	891	. .	921	. .	53.1	37 29 16.8	677	+ 43.0	88 36 21.0	+ 5.0
31	322 8	7.1	9.0	0.1	6.5	37	. .	090	. .	000	. .	53.1	37 48 15.0	. .	+ 43.6	88 55 20.7	+ 6.1
32	321 24	11.9	11.8	2.6	9 2	31	. .	. .	. .	350	362	53.1	38 30 51.0	680	+ 44.7	89 37 56.9	+ 6.4
33	316 46	12.0	13.9	4.9	11.0	30	. .	248	. .	246	. .	53.1	43 8 35.0	. .	+ 52.6	94 15 49.4	+ 8.1
34	314 36	13.7	15.0	5.9	12.0	27	. .	570	. .	. .	. .	53.1	45 17 55.0	. .	+ 56.7	96 25 13.8	+ 8.9
35	16 52	14.9	16.0	5.3	10.0	35	. .	770	. .	790	. .	53.1	343 4 2.1	680	— 17.1	34 10 6.2	+ 1.2
36	349 32	13.5	13.0	5.4	9.6	34	. .	383	. .	350	. .	53.1	10 23 38.0	584	+ 10.3	61 30 10.4	— 0.1
37	343 4	6.6	6.2	26.6	29.9	36	760	820	. .	. .	. .	53.1	16 52 8.0	. .	+ 16.5	67 58 45.7	
38	343 36	7.8	9.0	29.2	2.2	38	. .	. .	. .	580	580	53.1	16 20 37.0	. .	+ 15.9	67 27 14.7	
39	301 38	16.5	14.0	5.3	11.3	41	. .	. .	. .	490	500	51.8	58 19 28.0	555	+ 1 28.1	109 27 17.3	— 0.1
40	281 20	11.6	10.0	0.7	6.8	38	500	. .	. .	. .	620	51.8	78 36 38.0	. .	+ 4 23.4	129 47 23.2	—12.0
41	317 42	12.0	10.9	2.6	8.8	38	. .	490	. .	510	. .	51.8	42 14 39.1	. .	+ 49.5	93 21 49.8	+ 2.2
42	21 6	14.8	14.8	5.5	10.5	35	. .	270	. .	298	. .	51.8	338 49 53.1	. .	— 21.0	29 55 53.2	+ 9.3
43	294 56	17.0	15.4	5.4	12.9	37	. .	980	. .	990	. .	51.8	65 0 35.1	. .	+ 1 56.5	116 8 52.8	+ 1.5
44	22 8	17.4	17.5	8.0	13.0	37	. .	010	. .	980	. .	51.8	337 48 22.0	. .	— 22.3	28 54 20.9	+ 8.5
45	0 12	12.8	12.8	4.0	8.8	34	. .	012	. .	010	. .	51.8	359 43 31.4	. .	— 0.3	50 49 52.3	+ 0.6
46																	
47	327 52	7.9	7.4	27.4	3.2	33	270	. .	. .	. .	325	54.2	32 3 17.1	603	+ 34.5	83 10 12.8	+ 1.7
48	325 54	9.0	8.6	28.5	4.6	32	. .	785	. .	765	. .	54.2	34 1 10.2	. .	+ 37.2	85 8 8.6	+ 1.7

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
24	30.190	79.0	75.0

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
37	— 2.5	— 15 45.5	. .	— 15 48.0
38	— 2.5	+ 15 45.5	. .	+ 15 43.0

For summary of the elements of reduction see page 3.

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
July 12	1	δ Scorpii	Ha.	39.8	42.6	44.3	50.8	53.1	55.3	1.9	3.6	6.3	52 53.08	— 0.74	— 4.59	— 4.61	15 52 47.73	— 0.01
	2	B. A. C. 5473	Ha.	58.7	1.8	3.6	10.7	13.0	15.5	22.6	24.3	27.4	17 13.07	— 0.08	. .	— 4.62	16 17 8.37	— 1.69
	3	B. A. C. 5831	Ha.	12.2	15.0	16.8	23.3	25.6	27.8	34.8	36.3	38.9	10 25.63	— 0.78	. .	— 4.62	17 10 20.23	— 2.07
	4	B. A. C. 5853	Ha.	20.6	24.7	27.0	36.5	39.7	43.0	52.5	54.8	58.9	13 39.74	+ 0.25	. .	— 4.62	17 13 35.37	— 2.18
	5	B. A. C. 5871	Ha.	33.1	36.7	39.0	47.8	50.8	53.8	2.7	4.8	8.7	16 50.82	+ 0.18	. .	— 4.62	17 16 46.38	— 2.11
	6	α Ophiuchi	Ha.	53.8	56.5	58.0	4.3	6.4	8.5	14.8	16.3	18.9	29 6.39	— 0.32	— 4.60	— 4.62	17 29 1.45	+ 0.01
	7	ω Draconis	Ha.	. .	. .	37.8	43.3	49.2	54.9	0.5	. .	. .	37 49.14	+ 1.01	. .	— 4.62	17 37 45.53	— 0.01
	8	μ Herculis	Ha.	19.9	22.7	24.4	31.3	33.7	36.0	43.0	44.6	47.5	41 33.68	— 0.13	— 4.64	— 4.62	17 41 28.93	+ 0.02
	9	γ Draconis	Ha.	25.0	29.3	31.7	41.6	44.9	48.1	57.9	0.5	4.6	53 44.84	— 0.21	. .	— 4.63	17 53 40.00	— 0.54
	10	μ^1 Sagittarii	Ha.	0.9	3.7	5.3	11.8	14.0	16.2	22.9	24.4	27.3	6 14.06	— 0.73	— 4.63	— 4.63	18 6 8.70	0.00
	11	B. A. C. 6223	Ha.	48.0	50.8	52.5	59.1	1.4	3.7	10.4	12.0	14.8	14 1.41	— 0.17	. .	— 4.63	18 13 56.61	— 1.98
	12	B. A. C. 6311	Ha.	38.5	43.3	46.5	58.7	2.7	6.7	18.7	22.0	26.8	25 2.66	+ 0.54	. .	— 4.63	18 24 58.57	— 2.75
	13	51 Cephei, S. P.	Ha.	. .	. .	4.0	22.0	40.0	58.5	15.0	. .	. .	39 39.90	. .	. .	. .	. . . .	. .
	14	B. A. C. 6453	Ha.	14.3	17.0	16.7	25.3	27.5	29.7	36.4	38.0	40.8	49 27.52	— 0.20	. .	— 4.63	18 49 22.69	— 2.01
	15	B. A. C. 6527	Ha.	10.0	12.8	14.4	20.8	23.0	25.2	31.8	33.4	36.0	59 23.04	— 0.24	. .	— 4.63	18 59 18.17	— 2.00
17	16	α Tauri	E.	. .	. .	36.2	38.4	40.5	42.6	44.8	. .	. .	28 40.50	— 0.31	— 5.68	— 5.70	4 28 34.49	— 0.04
	17	ι Aurigæ	E.	30.5	33.6	35.4	42.7	45.0	47.5	54.8	56.6	59.7	48 45.09	— 0.10	— 5.69	— 5.70	4 48 39.29	— 0.05
	18	α Aurigæ	E.	. .	. .	13.4	16.4	19.4	22.3	25.5	. .	. .	7 19.40	+ 0.11	. .	— 5.70	5 7 13.81	+ 0.12
	19	β Orionis	E.	16.7	19.4	20.9	27.0	29.1	31.2	37.3	38.9	41.5	8 29.11	— 0.61	— 5.65	— 5.70	5 8 22.80	— 0.05
	20	β Tauri	E.	3.8	6.5	8.3	15.3	17.6	19.9	26.9	28.7	31.6	18 17.62	— 0.16	— 5.74	— 5.70	5 18 11.76	+ 0.02
	21	δ Orionis	E.	21.7	24.2	25.8	31.9	33.9	35.9	42.0	43.7	46.1	25 33.91	— 0.50	— 5.71	— 5.70	5 25 27.71	— 0.02
	22	ε Orionis	E.	. .	. .	44.9	47.0	49.0	51.0	53.1	. .	. .	29 49.00	— 0.52	— 5.74	— 5.70	5 29 42.78	+ 0.03
18	23	Sun I, N.	E.	. .	. .	7.0	9.3	11.5	13.8	15.9	. .	. .	52 11.50	— 0.26	. .	— 5.70	7 52 5.54	. .
	24	Sun II, S.	E.	14.0	16.7	18.4	24.9	27.3	29.4	35.8	37.5	40.0	54 27.11	— 0.26	. .	— 5.70	7 54 21.15	. .
	25	ε Orionis	F.	37.0	39.4	41.0	47.2	49.2	51.2	57.4	58.8	1.4	29 49.18	— 0.65	— 5.77	— 5.68	5 29 42.85	+ 0.08
	26	α Orionis	F.	8.2	10.7	. .	16.4	20.4	22.4	. .	30.2	. .	48 20.46	— 0.53	— 5.79	— 5.68	5 48 14.25	+ 0.07
	27	γ Geminorum	F.	12.0	14.7	16.3	22.6	24.8	27.0	33.3	34.8	37.6	30 24.79	— 0.40	— 5.83	— 5.68	6 30 18.71	+ 0.12
	28	α Canis Majoris	F.	23.4	26.0	27.6	34.2	36.3	38.4	44.6	46.3	49.0	39 36.20	— 0.90	— 5.76	— 5.68	6 39 29.62	0.00
	29	α Canis Minoris	F.	29.5	32.0	33.5	39.7	41.7	43.8	49.9	51.4	54.0	32 41.72	— 0.55	— 5.78	— 5.69	7 32 35.48	— 0.07
19	30	Sun I, S.	F.	59.2	1.9	3.8	10.3	12.3	14.5	21.2	22.7	25.4	56 12.37	— 0.33	. .	— 5.69	7 56 6.35	. .
	31	Sun II, N.	F.	14.5	17.2	18.9	25.5	27.5	29.9	36.4	38.0	40.8	58 27.63	— 0.33	. .	— 5.69	7 58 21.61	. .
	32	Mercury I, N.	F.	28.2	30.8	32.5	38.7	40.8	42.9	49.3	50.9	53.7	32 40.87	— 0.41	. .	— 5.70	9 32 34.76	+ 0.21
	33	19 Scorpii	F.	51.1	53.9	55.6	2.4	4.5	6.9	3.8	5.2	8.0	13 4.60	— 0.93	. .	— 5.76	16 12 57.91	— 1.76
	34	Anonymous	F.	6.4	9.6	11.4	. .	. .	. .	. .	32.8	35.9	15 21.20	— 1.15	. .	— 5.76	16 15 14.29	— 1.92
	35	Anonymous	F.	. .	. .	21.6	24.4	26.6	29.0	31.3	. .	. .	15 26.58	— 1.15	. .	— 5.76	16 15 19.67	— 1.92
	36	22 Scorpii	F.	21.0	23.8	25.4	32.3	34.4	36.7	43.5	45.0	48.0	22 34.46	— 0.95	. .	— 5.76	16 22 27.75	— 1.82
	37	ζ Ophiuchi	F.	2.4	5.0	6.6	12.7	14.8	16.9	23.0	24.7	27.3	30 14.82	— 0.70	— 5.67	— 5.76	16 30 8.36	— 0.09
	38	η Herculis	F.	22.2	25.5	27.5	35.5	38.0	40.6	48.5	50.5	53.9	38 38.02	+ 0.10	— 5.84	— 5.76	16 38 32.36	+ 0.09
	39	B. A. C. 5831	F.	13.4	16.2	18.0	24.4	26.8	29.0	35.8	37.4	40.2	10 26.80	— 0.94	. .	— 5.77	17 10 20.09	— 2.04
	40	B. A. C. 5853	F.	21.9	25.7	28.0	37.7	40.8	44.3	53.7	56.0	59.9	13 40.89	+ 0.37	. .	— 5.77	17 13 35.49	— 2.08
	41	B. A. C. 5863	F.	45.6	48.5	50.5	57.7	0.1	2.4	9.7	11.5	14.6	16 0.07	— 0.04	. .	— 5.77	17 15 54.26	— 1.86
	42	μ^1 Sagittarii	F.	. .	. .	. .	. .	. .	. .	24.0	25.7	28.4	6 15.27	— 0.88	— 5.67	— 5.77	18 6 8.62	— 0.10
	43	B. A. C. 6223	F.	49.2	52.0	53.7	0.4	2.7	4.9	11.6	13.3	16.2	14 2.67	— 0.18	. .	— 5.78	18 13 56.71	— 1.97
	44	21 Sagittarii	F.	39.3	42.0	43.6	50.1	52.4	54.6	1.0	2.8	5.5	17 52.37	— 0.88	. .	— 5.78	18 17 45.71	— 2.23
	45	B. A. C. 6256	F.	. .	. .	. .	. .	29.2	31.5	36.4	38.1	41.2	20 26.77	— 1.09	. .	— 5.78	18 20 19.90	— 2.46
	46	Anonymous	F.	10.8	14.0	15.8	23.8	26.0	28.6	36.8	38.4	41.7	25 26.21	— 1.24	. .	— 5.78	18 25 19.19	— 2.64
	47	Anonymous	F.	31.7	34.9	36.8	44.3	47.0	49.7	57.4	59.3	2.5	26 47.07	— 1.24	. .	— 5.78	18 26 40.05	— 2.64
	48	51 Cephei, S. P.	F.	. .	. .	8.5	26.0	43.5	59.5	17.5	. .	. .	39 43.00	—14.58	. .	— 5.78	6 39 22.64	— 3.58
	49	B. A. C. 6527	F.	11.3	14.0	15.6	22.1	24.3	26.4	32.8	34.4	37.0	59 24.21	— 0.27	. .	— 5.78	18 59 18.16	— 2.03

7, 16, 18. Bisections at sets B and D.
12. Telescope micrometer reading increased ten revolutions in reduction.
41. Telescope micrometer reading increased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							°	° ′ ″		′ ″	° ′ ″	″
1	298 48	9.0	7.0	27.2	3.9	33	. .	775	. .	800	. .	54.2	61 7 24.7	610	+ 1 39.7	112 15 25.6	+ 0.6
2	352 14	5.5	5.0	26.1	29.6	36	. .	300	. .	260	. .	54.2	7 42 0.6	620	+ 7.5	58 48 29.3	+ 5.5
3	297 8	10.7	10.0	0.1	6.5	34	. .	670	. .	710	. .	54.2	62 47 41.0	633	+ 1 47.5	113 55 49.7	— 4.3
4	10 52	5.0	6.0	27.1	1.5	36	. .	045	. .	080	. .	54.2	349 3 58.2	. .	— 10.7	40 10 8.7	+ 6.2
5	7 24	5.2	5.5	26.6	1.0	34	. .	730	. .	775	. .	54.2	352 31 37.8	. .	— 7.3	43 37 51.7	+ 5.8
6	333 42	7.6	6.9	27.6	2.3	35	. .	580	. .	580	. .	54.2	26 13 51.7	638	+ 27.4	77 20 40.3	+ 1.0
7	29 50	0.6	1.7	22.0	26.9	32	860	. .	. .	. .	840	54.2	330 5 4.1	. .	— 32.0	21 10 53.3	— 1.7
8	348 50	1.0	3.0	22.6	28.0	34	. .	. .	. .	850	825	54.2	11 5 35.5	. .	+ 10.9	62 12 7.6	+ 1.3
9	12 32	7.0	8.1	28.5	3.4	34	. .	085	. .	110	. .	54.2	347 13 30.0	. .	— 12.5	38 29 38.7	+ 0.5
10	299 58	3.6	2.5	21.8	28.5	34	. .	355	. .	335	. .	54.2	59 57 28.0	648	+ 1 36.0	111 5 25.2	+ 0.5
11	345 26	10.1	10.2	0.0	4.9	34	. .	690	. .	740	. .	54.2	14 29 41.2	. .	+ 14.4	65 36 16.8	+ 2.5
12	20 40	0.0	0.9	21.8	25.0	28	. .	130	. .	120	. .	54.2	339 16 24.5	. .	— 21.1	30 22 24.6	+ 3.2
13	53 46	7.6	8.5	0.6	4.5	32	. .	650	705	640	. .	54.2	306 9 8.6	650	— 1 16.1	357 14 13.7	— 0.3
14	343 32	7.0	8.0	27.4	1.5	37	. .	060	. .	170	. .	54.2	16 24 16.1	. .	+ 16.4	67 30 53.6	+ 1.9
15	340 0	1.2	1.9	21.4	26.6	36	. .	890	. .	925	. .	54.2	19 56 6.4	652	+ 20.2	71 2 47.8	+ 1.8
16	337 18	12.2	10.5	2.0	5.7	36	890	. .	. .	. .	860	51.6	22 38 13.0	548	+ 22.7	79 44 56.9	+ 0.8
17	354 0	6.7	3.5	25.7	29.0	35	. .	964	. .	952	. .	51.6	5 55 52.8	. .	+ 5.6	57 2 19.6	— 0.7
18	6 54	12.3	12.3	2.0	5.0	35	498	. .	. .	. .	528	51.6	353 1 52.5	. .	— 6.6	44 8 7.1	— 2.1
19	312 42	12.6	9.5	1.8	6.9	34	. .	362	. .	420	. .	51.6	47 13 34.9	525	+ 58.5	98 20 54.6	— 1.1
20	349 32	12.5	11.3	2.0	4.0	34	. .	600	. .	614	. .	51.6	10 23 38.2	. .	+ 9.9	61 30 9.3	— 1.0
21	320 40	12.5	9.5	0.5	5.3	38	. .	150	. .	160	. .	51.6	39 16 32.0	. .	+ 44.3	90 23 37.5	— 0.9
22	319 46	13.8	11.8	2.5	8.0	35	. .	610	. .	550	. .	51.6	40 9 52.0	528	+ 45.7	91 16 58.9	— 2.2
23	342 12	10.2	8.0	28.5	5.7	32	910	850	. .	. .	. .	51.6	17 43 10.1	. .	+ 16.9	68 49 48.2	
24	341 40	3.1	0.1	19.7	27.2	31	. .	. .	. .	650	708	51.6	18 14 43.0	430	+ 17.5	69 21 21.7	
25	319 46	14.2	8.1	27.4	4.3	35	. .	790	. .	786	. .	51.5	40 9 54.6	586	+ 46.4	91 17 2.2	+ 1.3
26	328 26	17.2	9.9	29.2	6.5	36	. .	560	. .	570	. .	51.5	31 30 8.7	576	+ 33.6	82 37 3.5	+ 0.9
27	337 32	12.2	6.5	26.0	2.4	31	. .	724	. .	728	. .	51.5	22 22 50.6	566	+ 22.5	73 29 34.3	+ 1.4
28	304 32	12.6	5.2	23.1	1.3	39	. .	495	. .	485	. .	51.5	55 24 48.4	560	+ 1 19.0	106 32 28.6	+ 1.7
29	326 36	10.7	4.2	22.5	0.8	36	. .	214	. .	214	. .	51.5	33 19 57.2	546	+ 35.8	84 26 54.2	+ 1.7
30	341 30	14.0	10.8	0.7	5.0	31	720	720	. .	. .	. .	51.5	18 25 40.3	. .	+ 18.0	69 32 19.5	
31	342 2	12.5	10.2	0.3	3.0	36	. .	. .	. .	636	646	51.5	17 54 18.1	536	+ 17.5	69 0 46.8	
32	336 32	9.0	4.9	24.7	0.4	32	. .	000	. .	000	. .	51.5	23 22 52.7	496	+ 23.3	74 29 37.2	
33	297 12	7.7	4.6	24.6	0.4	34	480	490	. .	. .	. .	52.5	62 43 31.2	. .	+ 1 47.2	113 51 39.6	— 8.1
34	286 42	9.2	5.7	26.0	3.3	30	. .	. .	. .	180	. .	52.5	73 12 26.8	. .	+ 3 1.4	124 21 49.4	—10.7
35	286 42	9.2	5.7	26.0	3.3	32	. .	. .	. .	. .	120	52.5	73 12 56.2	. .	+ 3 1.6	124 22 19.0	—10.7
36	296 14	8.6	6.8	27.4	2.6	35	. .	380	. .	376	. .	52.5	63 41 46.9	630	+ 1 51.8	114 49 59.9	— 8.1
37	310 44	11.6	8.4	27.9	4.4	32	. .	. .	. .	200	208	52.5	49 10 59.9	. .	+ 1 4.2	100 18 25.3	+ 2.7
38	0 12	8.2	6.5	25.9	0.2	34	. .	376	. .	370	. .	52.5	359 43 30.7	634	— 0.3	50 49 51.6	+ 1.6
39	297 8	13.0	10.7	25.5	6.2	34	758	750	. .	. .	. .	52.5	62 47 39.8	. .	+ 1 47.7	113 55 48.7	— 5.5
40	10 52	2.5	1.8	22.2	25.8	36	290	284	. .	. .	. .	52.5	349 3 56.0	. .	— 10.8	40 10 6.4	+ 7.9
41	353 40	4.6	3.0	22.9	27.5	33	. .	240	. .	260	. .	52.5	6 15 25.6	648	+ 6.1	57 21 52.9	+ 5.8
42																	
43	345 26	5.7	5.3	26.0	0.5	35	020	020	. .	. .	. .	52.5	14 29 39.9	. .	+ 14.4	65 36 15.5	+ 4.0
44	300 26	7.9	5.8	25.6	2.0	30	600	586	. .	. .	. .	52.5	59 28 32.5	. .	+ 1 34.4	110 36 28.1	— 1.5
45	289 28	10.3	8.4	28.2	5.4	33	. .	. .	. .	430	438	52.5	70 27 18.6	. .	+ 2 35.9	121 36 15.7	— 2.9
46	283 18	11.1	8.5	27.4	4.6	35	464	448	. .	. .	. .	52.5	76 37 49.5	. .	+ 3 50.0	127 48 0.7	— 3.5
47	283 8	8.5	6.6	25.2	1.9	44	. .	. .	. .	000	010	52.5	76 49 58.3	. .	+ 3 53.3	128 0 12.8	— 3.5
48	53 46	6.2	4.1	25.6	0.3	32	888	886	882	892	900	52.5	306 9 6.5	668	— 1 16.4	357 14 11.3	— 0.5
49	340 0	7.0	5.0	25.6	0.0	36	. .	608	. .	638	. .	52.5	19 56 4.4	. .	+ 20.3	71 2 45.9	+ 3.3

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
2	29.970	79.5	75.2
31	30.030	83.0	89.0
32	. .	. .	89.0
36	. .	. .	75.0
41	. .	. .	73.0
48	. .	. .	70.2

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
23	— 2.6	+ 15 46.7	. .	+ 15 44.1
24	— 2.7	— 15 46.7	. .	— 15 49.4
30	— 2.7	— 15 46.3	. .	— 15 49.0
31	— 2.6	+ 15 46.3	. .	+ 15 43.7
32	— 3.2	+ 3.0	. .	— 0.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
July 19	1	Weisse 1542 . .	F.	45.7	48.4	. .	. .	0.0	1.9	. .	6.0	7.8	0 57.96	— 0.56	. .	— 5.78	19 0 51.62	— 2.10
	2	*d* Sagittarii . . .	F.	4.6	7.4	9.0	15.4	17.5	19.7	26.2	27.8	30.5	10 17.57	— 0.85	— 5.73	— 5.78	19 10 10.94	— 0.03
	3	Saturn I, N. . .	F.	23.2	25.9	27.4	. .	. .	. .	45.1	46.6	49.4	14 36.27	— 0.90	. .	— 5.78	19 14 29.59	. .
	4	Saturn II, S. . .	F.	. .	. .	33.4	35.4	37.5	39.8	42.0	. .	. .	14 37.62	— 0.90	. .	— 5.78	19 14 30.94	. .
	5	δ Aquilæ. . . .	F.	. .	. .	. .	. .	. .	. .	19.1	20.6	23.2	19 10.92	— 0.50	— 5.67	— 5.78	19 19 4.64	— 0.06
	6	κ Aquilæ. . . .	F.	. .	. .	4.8	6.7	8.7	10.8	12.7	. .	. .	30 8.74	— 0.66	— 5.64	— 5.79	19 30 2.29	— 0.11
	7	Moon I, S. . .	F.	31.5	34.5	36.2	43.0	45.5	47.7	44.9	46.6	49.5	37 45.49	— 0.98	. .	— 5.79	19 37 38.72	+77.50
	8	α Aquilæ. . . .	F.	28.1	30.8	32.3	38.5	40.5	42.6	48.8	50.4	53.0	44 40.56	— 0.42	— 5.77	— 5.79	19 44 34.35	+ 0.02
	9	β Aquilæ. . . .	F.	. .	. .	5.7	7.7	9.7	11.8	13.9	. .	. .	49 9.76	— 0.46	— 5.68	— 5.79	19 49 3.51	— 0.08
	10	λ Ursæ Minoris. .	F.	. .	. .	. .	. .	33.0	22.0	7.0	. .	. .	52 32.13	+36.00	. .	— 5.79	19 52 2.34	— 7.29
20	11	Anonymous . .	Ha.	6.4	9.3	. .	16.4	18.6	21.2	24.2	26.5	. .	15 21.31	— 0.94	. .	— 5.90	16 15 14.47	— 1.91
	12	Anonymous . .	Ha.	. .	. .	. .	. .	29.2	31.7	36.5	38.4	41.5	15 26.67	— 0.94	. .	— 5.90	16 15 19.83	— 1.91
	13	χ Ophiuchi . . .	Ha.	. .	. .	40.6	42.8	44.9	47.0	49.2	. .	. .	19 44.90	— 0.67	. .	— 5.90	16 19 38.33	— 1.73
	14	η Herculis . . .	Ha.	22.2	25.4	27.5	35.4	37.9	40.8	48.7	50.8	53.9	38 38.07	+ 0.10	— 5.90	— 5.90	16 38 32.27	+ 0.01
	15	9 Camelopard., S. P.	Ha.	. .	. .	37.2	31.8	27.0	20.5	16.7	. .	. .	41 26.64	— 1.53	. .	— 5.90	4 41 19.21	— 0.12
	16	κ Ophiuchi . . .	Ha.	32.1	34.8	36.4	42.5	44.6	46.6	52.9	54.4	57.0	51 44.59	— 0.32	— 5.96	— 5.90	16 51 38.37	+ 0.10
	17	B. A. C. 5831 . .	Ha.	13.4	16.3	17.8	24.5	26.9	29.1	35.8	37.6	40.3	10 26.86	— 0.76	. .	— 5.91	17 10 20.19	— 2.05
	18	ξ Ophiuchi . . .	Ha.	15.5	18.1	19.9	26.5	28.7	30.9	37.4	39.0	41.9	13 28.66	— 0.71	. .	— 5.91	17 13 22.04	— 2.02
	19	B. A. C. 5863 . .	Ha.	. .	. .	55.1	57.6	0.0	2.4	4.9	. .	. .	16 0.00	— 0.01	. .	— 5.91	17 15 54.08	— 1.85
	20	α Ophiuchi . . .	Ha.	55.0	57.6	59.2	5.6	7.6	9.7	16.0	17.6	20.2	29 7.61	— 0.28	— 5.88	— 5.91	17 29 1.42	0.00
	21	ω Draconis . . .	Ha.	. .	. .	38.3	44.4	50.0	55.8	1.3	. .	. .	37 49.96	+ 1.13	. .	— 5.91	17 37 45.18	— 0.09
	22	μ Herculis . . .	Ha.	20.9	23.9	25.6	32.7	34.9	37.3	44.2	45.9	48.7	41 34.90	— 0.08	— 5.96	— 5.92	17 41 28.90	+ 0.04
	23	γ^2 Sagittarii . .	Ha.	30.0	33.0	34.7	41.9	44.3	46.6	53.7	55.6	58.3	57 44.23	— 0.87	— 5.83	— 5.92	17 57 37.44	— 0.08
	24	Anonymous . .	Ha.	56.9	59.5	1.4	7.9	9.9	12.0	18.8	20.4	23.0	5 9.98	— 0.71	. .	— 5.92	18 5 3.35	— 2.21
	25	ε Sagittarii . . .	Ha.	35.0	38.0	39.9	47.3	49.0	52.2	59.7	1.6	4.7	15 49.81	— 0.94	. .	— 5.92	18 15 42.95	— 2.52
	26	B. A. C. 6256 . .	Ha.	. .	. .	22.1	24.7	27.0	29.2	31.8	. .	. .	19 26.96	— 0.89	. .	— 5.92	18 19 20.15	— 2.46
	27	51 Cephei, S. P. . .	Ha.	. .	. .	8.5	25.0	44.5	2.0	19.5	. .	. .	39 43.90	. .	. .	. .	. . . .	. .
21	28	ε Orionis. . . .	E.	37.6	40.1	41.8	47.8	49.8	52.0	58.3	59.6	2.1	29 49.90	— 0.63	— 6.44	— 6.42	5 29 42.85	+ 0.01
	29	α Orionis. . . .	E.	8.8	11.5	13.0	19.1	21.2	23.2	29.4	31.0	33.4	48 21.18	— 0.50	— 6.47	— 6.42	5 48 14.26	+ 0.01
	30	γ Geminorum . .	E.	12.6	15.3	17.0	23.2	25.4	27.7	34.0	35.5	38.3	30 25.44	— 0.37	— 6.45	— 6.43	6 30 18.64	— 0.01
	31	α Canis Majoris. .	E.	24.3	26.7	28.4	34.9	36.9	39.0	45.5	47.0	49.6	39 36.92	— 0.87	— 6.46	— 6.43	6 39 29.62	— 0.05
22	32	Sun I, N. . . .	E.	58.2	0.8	2.4	9.1	11.4	13.6	19.9	21.6	24.3	8 11.26	— 0.31	. .	— 6.45	8 8 4.50	. .
	33	Sun II, S. . . .	E.	12.7	15.6	17.3	23.8	25.9	28.0	34.9	36.4	39.2	10 25.98	— 0.31	. .	— 6.45	8 10 19.22	. .
	34	ε Leonis . . .	E.	27.7	30.8	32.4	39.2	41.4	43.5	50.3	51.9	54.8	38 41.33	— 0.25	— 6.53	— 6.47	9 38 34.61	0.00
	35	Mercury I, N. .	E.	56.6	59.4	1.0	7.3	9.4	11.5	17.8	19.4	22.0	49 9.38	— 0.41	. .	— 6.47	9 49 2.50	+ 0.22
	36	α Leonis . . .	E.	27.0	29.8	31.4	37.7	39.8	41.9	48.2	49.8	52.4	1 39.78	— 0.43	— 6.44	— 6.48	10 1 32.87	— 0.08
	37	γ^1 Leonis . . .	E.	48.0	50.9	52.4	59.1	1.2	3.4	10.0	11.6	14.4	13 1.22	— 0.31	— 6.40	— 6.49	10 12 54.42	— 0.11
	38	ζ Aquilæ. . . .	E.	28.2	30.8	32.3	38.6	40.7	42.9	49.3	50.8	53.5	59 40.79	— 0.44	— 6.69	— 6.59	18 59 33.76	+ 0.18
	39	*d* Sagittarii . . .	E.	5.5	8.1	9.6	16.3	18.4	20.6	27.1	28.8	31.5	10 18.43	— 0.91	— 6.51	— 6.59	19 10 10.93	— 0.06
	40	ρ^1 Sagittarii . . .	E.	11.6	14.4	16.1	22.4	24.7	26.8	33.2	34.8	37.6	14 24.62	— 0.90	. .	— 6.59	19 14 17.13	— 2.29
	41	δ Aquilæ. . . .	E.	59.8	2.3	3.8	9.9	11.9	14.0	20.2	21.7	24.4	19 12.00	— 0.59	— 6.64	— 6.59	19 19 4.82	+ 0.10
	42	κ Aquilæ. . . .	E.	57.3	59.9	1.4	7.5	9.6	11.6	17.9	19.5	22.0	30 9.63	— 0.73	— 6.44	— 6.60	19 30 2.30	— 0.12
	43	*f* Sagittarii . . .	E.	50.4	53.0	54.7	1.1	3.5	5.7	12.0	13.7	16.6	39 3.41	— 0.92	. .	— 6.60	19 38 55.89	— 2.36
	44	α Aquilæ. . . .	E.	29.0	31.7	33.4	39.5	41.5	43.6	49.8	51.3	53.9	44 41.52	— 0.51	— 6.62	— 6.60	19 44 34.41	+ 0.06
	45	β Aquilæ. . . .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	46	λ Ursæ Minoris. .	E.	. .	. .	. .	55.0	42.0	30.0	18.0	. .	. .	52 41.75	. .	. .	. .	. . . .	. .
23	47	ζ Aquilæ. . . .	F.	28.3	31.0	32.5	38.8	40.9	43.0	49.4	50.9	53.5	59 40.92	— 0.41	— 6.85	— 6.83	18 59 33.68	+ 0.10
	48	ψ Sagittarii . . .	F.	38.2	41.1	42.8	49.5	51.8	54.0	0.8	2.6	5.4	7 51.80	— 0.99	. .	— 6.84	19 7 43.97	— 2.44
	49	*d* Sagittarii . . .	F.	5.8	8.5	10.3	16.6	18.8	21.0	27.5	29.1	31.8	10 18.82	— 0.88	— 6.92	— 6.84	19 10 11.10	+ 0.10

7, 21. Bisections at sets B and D.
15. Bisections at wires V and VI.
24. Wire A used.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1																	
2	301 54	6.5	3.8	22.2	29.2	39	. .	572	. .	560	. .	52.5	58 2 47.9	. .	+ 1 29.7	109 10 38.8	+ 1.3
3	298 56	10.1	9.0	27.9	5.3	38	610	. .	. .	. .	564	52.5	61 0 37.8	. .	+ 1 41.0	112 8 40.0	
4	298 56	10.1	9.0	27.9	5.3	37	. .	140	. .	116	. .	52.5	61 0 15.6	. .	+ 1 40.7	112 8 17.5	
5	323 56	6.8	4.4	24.0	0.4	41	. .	. .	. .	070	080	52.5	36 1 12.1	. .	+ 40.9	87 8 14.2	− 0.6
6	313 44	9.2	7.1	27.2	3.8	33	. .	. .	. .	102	110	52.5	46 11 12.6	. .	+ 58.6	97 18 32.4	+ 1.0
7	294 58	8.5	5.1	24.5	3.0	37	145	. .	080	. .	110	52.5	64 58 12.6	. .	+ 2.0	116 6 33.8	
8	329 34	5.1	3.0	22.3	28.0	32	. .	912	. .	912	. .	52.5	30 21 5.0	. .	+ 33.0	81 27 59.2	− 1.5
9	327 8	17.8	15.7	4.7	11.8	34	. .	. .	. .	258	254	52.5	32 47 38.5	. .	+ 36.3	83 54 36.0	− 0.5
10	49 56	3.7	3.1	24.2	29.7	33	. .	. .	. .	940	000	52.5	309 59 22.1	684	− 1 7.2	1 4 36.1	− 1.8
11	286 42	9.3	7.2	27.0	4.9	29	875	895	. .	. .	. .	52.8	73 12 23.6	. .	+ 3 2.3	124 21 47.1	−10.7
12	286 42	9.3	7.2	27.0	4.9	32	. .	. .	. .	045	085	52.8	73 12 56.8	. .	+ 3 2.4	124 22 20.4	−10.7
13	302 54	10.5	6.9	26.3	3.1	36	. .	. .	. .	775	780	52.8	57 2 9.0	635	+ 1 25.8	108 9 55.0	− 6.0
14	0 12	9.5	9.0	29.0	3.7	34	090	070	. .	. .	. .	52.8	359 43 29.4	. .	− 0.3	50 49 50.3	+ 0.5
15	74 52	4.0	3.6	23.2	29.9	37	. .	. .	. .	245	300	52.8	285 4 12.3	642	− 3 23.3	336 7 10.2	+ 0.3
16	330 38	7.0	7.0	26.4	1.5	38	. .	350	. .	350	. .	52.8	29 18 32.2	645	+ 31.2	80 25 24.6	+ 0.9
17	297 8	5.4	3.8	23.2	0.0	35	. .	120	. .	110	. .	52.8	62 47 39.9	. .	+ 1 47.8	113 55 48.9	− 5.3
18	300 6	10 13.5	11.6	0.7	7.9	37	. .	900	. .	910	. .	52.8	59 50 30.6	. .	+ 1 35.4	110 58 27.2	− 4.7
19	353 40	2.6	2.3	22.4	26.6	34	. .	. .	. .	300	325	52.8	6 15 25.9	650	+ 6.1	57 21 53.2	+ 6.0
20	333 42	5.5	5.1	24.5	29.1	35	. .	775	. .	760	. .	52.8	26 13 50.6	. .	+ 27.5	77 20 39.3	+ 1.1
21	29 50	29.0	0.5	19.7	24.5	32	900	. .	. .	. .	890	52.8	330 5 1.5	. .	− 32.1	21 10 50.6	− 2.3
22	348 50	3.2	4.1	23.0	26.5	34	. .	715	. .	725	. .	52.8	11 5 32.8	658	+ 11.0	62 12 5.0	+ 0.3
23	290 40	3.1	3.4	21.1	28.0	39	. .	. .	. .	000	940	52.8	69 16 37.3	. .	+ 2 26.6	120 25 25.1	− 1.8
24	300 0	1.8	1.7	19.6	25.5	34	. .	. .	. .	. .	900	52.8	59 52 58.9	670	+ 1 36.4	111 0 56.5	− 2.3
25	286 38	5.0	5.0	23.2	0.1	33	. .	. .	. .	080	095	52.8	73 17 8.7	. .	+ 3 4.1	124 26 34.0	− 3.8
26	289 28	5.7	5.7	23.6	0.2	33	. .	. .	. .	690	710	52.8	70 27 18.7	675	+ 2 36.4	121 35 16.3	− 3.1
27	53 46	8.2	9.3	29.5	2.9	32	. .	775	760	710	. .	52.8	306 9 8.1	. .	− 1 16.6	357 14 12.7	+ 1.1
28	319 46	12.3	12.2	3.0	8.3	35	. .	528	. .	546	. .	51.8	40 9 54.0	610	+ 46.6	91 17 1.8	+ 1.4
29	328 26	13.3	9.4	0.5	5.5	36	. .	478	. .	484	. .	51.8	31 30 6.8	604	+ 33.7	82 37 1.7	− 0.6
30	337 32	10.2	9.4	29.3	4.1	31	. .	565	. .	560	. .	51.8	22 22 49.9	. .	+ 22.6	73 29 33.7	+ 0.9
31	304 32	11.4	9.0	0.0	6.5	39	115	130	. .	080	092	51.8	55 24 46.4	595	+ 1 19.6	106 32 27.2	+ 0.9
32	341 28	3.3	0.6	18.8	26.5	40	990	988	. .	. .	. .	51.8	18 29 6.6	. .	+ 18.2	69 35 46.0	
33	340 56	8.5	7.8	27.2	3.3	38	. .	. .	. .	990	920	51.8	19 0 41.6	546	+ 18.8	70 7 21.6	
34	345 24	6.2	6.3	26.3	2.3	31	. .	684	. .	690	. .	51.8	14 31 34.9	550	+ 14.1	65 38 10.2	+ 0.3
35	334 44	9.3	7.0	28.5	2.5	34	040	032	. .	140	145	51.8	25 11 27.3	. .	+ 25.6	76 18 14.1	
36	333 38	12.0	9.7	1.3	6.0	34	. .	640	. .	600	. .	51.8	26 17 38.3	. .	+ 26.9	77 24 26.4	+ 1.3
37	341 32	9.6	8.3	28.3	3.1	36	160	172	. .	162	170	51.8	18 23 59.8	. .	+ 18.1	69 30 39.1	+ 1.7
38	334 44	11.2	9.1	0.0	4.1	38	. .	666	. .	630	. .	51.7	25 12 39.0	670	+ 26.3	76 19 26.5	+ 0.9
39	301 54	8.0	5.0	26.2	2.5	39	. .	660	. .	600	. .	51.7	58 2 50.7	. .	+ 1 29.5	109 10 41.4	+ 2.9
40	302 58	12.0	8.8	0.8	6.2	33	. .	500	. .	516	. .	51.7	56 57 20.6	. .	+ 1 25.8	108 5 7.6	+ 1.7
41	323 54	10.0	8.1	28.6	4.3	33	. .	090	. .	100	. .	51.7	36 1 12.7	. .	+ 40.7	87 8 14.6	+ 0.2
42	313 44	11.6	9.5	1.0	6.0	32	. .	940	. .	950	. .	51.7	46 11 12.1	. .	+ 58.3	97 18 31.6	+ 0.4
43	301 0	8.0	7.0	27.5	1.7	36	. .	430	. .	490	. .	51.7	58 56 2.6	. .	+ 1 32.7	110 3 56.5	+ 2.8
44	329 34	15.8	14.0	4.5	9.2	32	. .	256	. .	250	. .	51.7	30 21 5.4	. .	+ 32.8	81 27 59.4	− 0.8
45	327 8	14.3	12.1	2.8	8.0	34	. .	520	. .	550	. .	51.7	32 47 38.9	. .	+ 36.1	83 54 36.2	+ 0.2
46	49 56	8.3	8.0	0.0	2.8	33	. .	. .	710	. .	750	51.7	309 59 22.2	. .	− 1 6.7	1 4 36.7	− 0.3
47	334 44	5.5	3.4	25.2	28.8	38	. .	910	. .	912	. .	53.2	25 12 39.1	658	+ 26.3	76 19 26.6	+ 1.2
48	295 34	8.0	4.6	25.4	1.5	29	. .	250	. .	250	. .	53.2	64 20 12.3	. .	+ 1 55.8	115 28 29.3	+ 0.7
49	301 54	5.0	1.7	21.6	29.1	39	. .	. .	. .	730	720	53.2	58 2 49.9	. .	+ 1 29.4	109 10 40.5	+ 3.0

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
10	30.048	77.0	66.5
13	. .	. .	73.0
16	30.070	79.0	74.0
47	. .	. .	69.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
3	− 0.8	− 11.3	. .	− 12.1
4	− 0.9	+ 11.3	. .	+ 10.4
7	−55 29.4	− 16 45.5	. .	−1 12 14.9
32	− 2.8	+ 15 47.8	. .	+ 15 45.0
33	− 2.8	− 15 47.8	. .	− 15 50.6
35	− 3.6	+ 3.1	. .	− 0.5

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s	s.
July 23	1	ρ^1 Sagittarii . . .	F.	12.0	14.8	16.4	22.9	25.0	27.0	33.8	35.3	37.9	14 25.01	— 0.86	. .	— 6.84	19 14 17.31	— 2.31
	2	κ Aquilæ . . .	F.	57.7	0.3	1.9	8.0	10.0	12.0	18.3	19.9	22.6	30 10.08	— 0.69	— 6.92	— 6.85	19 30 2.54	+ 0.11
	3	γ Aquilæ . . .	F.	7.4	10.0	11.6	17.8	19.9	22.0	28.2	29.7	32.3	40 19.88	— 0.45	— 6.87	— 6.85	19 40 12.58	+ 0.05
	4	π Capricorni . .	Ha.	56.5	59.4	0.9	7.3	9.5	11.7	18.2	19.5	22.2	20 9 47	— 0.87	— 6.68	— 6.67	20 20 1.93	+ 0.04
	5	ε Delphini . . .	Ha.	2.5	5.2	6.7	13.0	15.0	17.1	23.3	24.9	27.5	27 15.02	— 0.44	. .	— 6.67	20 27 7.91	0.00
	6	Groombridge 3241	Ha.	. .	. .	. .	. .	. .	54.7	7.9	12.7	21.2	30 41.44	+ 1.55	. .	— 6.67	20 30 36.32	— 0.05
	7	α Cygni	Ha.	55.5	59.5	1.2	10.0	13.0	15.7	24.4	26.6	30.2	37 12.90	+ 0.15	. .	— 6.67	20 37 6.38	+ 0.01
	8	μ Aquarii . . .	Ha.	42.0	44.7	46.2	52.5	54.5	56.6	2.8	4.3	7.0	45 54.51	— 0.72	— 6.66	— 6.67	20 45 47.12	+ 0.06
	9	61 Cygni	F.	. .	13.3	16.0	18.7	21.2	24.0	29.0	31.0	34.3	1 18.64	0.00	— 6.67	— 6.86	21 1 11.78	— 0.23
	10	ζ Cygni	F.	24.1	27.0	28.8	36.0	38.2	40.5	47.7	49.5	52.5	7 38.26	— 0.16	— 6.71	— 6.86	21 7 31.24	— 0.14
24	11	η Herculis . . .	Ha.	23.4	26.7	28.6	36.6	39.2	41.9	49.7	51.6	54.9	38 39.18	— 0.01	— 6.97	— 6.90	16 38 32.27	+ 0.08
	12	9 Camelopard., S. P.	Ha.	. .	. .	38.5	33.4	28.3	22.9	17.9	. .	. .	41 28.20	— 1.59	. .	— 6.90	4 41 19.71	+ 0.15
	13	κ Ophiuchi . . .	Ha.	33.1	35.9	37.3	43.6	45.6	47.7	53.9	55.5	58.0	51 45.62	— 0.43	— 6.91	— 6.91	16 51 38.28	+ 0.04
	14	ε Ursæ Minoris .	Ha.	47.3	7.2	18.3	. .	. .	. .	19.6	30.8	49.7	59 18.98	+ 3.68	. .	— 6.91	16 59 15.75	+ 1.52
	15	α^1 Herculis . . .	Ha.	45.0	47.8	49.3	55.5	57.7	59.9	6.2	7.7	10.4	8 57.72	— 0.37	— 6.90	— 6.91	17 8 50.44	+ 0.01
	16	α Ophiuchi . . .	Ha.	56.2	58.7	0.3	6.7	8.7	10.8	17.2	18.8	21.3	29 8.74	— 0.39	— 6.93	— 6.91	17 29 1.44	+ 0.05
	17	χ^2 Sagittarii . .	Ha.	31.2	34.0	36.0	43.0	45.4	47.8	55.0	56.6	59.5	57 45.39	— 1.00	— 6.86	— 6.91	17 57 37.48	— 0.04
	18	λ Ursæ Minoris .	Ha.	. .	. .	. .	. .	. .	22.7	11.9	. .	. .	52 34.20	. .	. .	. .	. . . .	. .
	19	π Capricorni . .	Ha.	56.9	1.4	5.7	7.9	9.9	12.0	14.3	18.5	22.8	20 9.93	— 1.00	— 6.99	— 7.08	20 20 1.85	— 0.06
	20	α Cygni	Ha.	56.2	59.8	1.9	10.5	13.4	16.4	25.0	27.2	30.9	36 13.48	+ 0.18	. .	— 7.08	20 37 6.58	+ 0.19
	21	μ Aquarii . . .	Ha.	42.6	45.2	46.9	53.1	55.1	57.2	3.3	4.9	7.4	45 55.08	— 0.84	— 7.09	— 7.08	20 45 47.16	+ 0.08
	22	ν Cygni	Ha.	17.4	20.6	22.6	. .	. .	. .	. .	. .	. .	52 33.43	+ 0.07	— 7.16	— 7.08	20 52 26.42	+ 0.14
	23	ζ Cygni	Ha.	. .	. .	33.9	36.2	38.6	41.0	43.4	. .	. .	7 38.62	— 0.13	— 7.07	— 7.08	21 7 31.41	0.00
26	24	δ Ophiuchi . . .	E.	35.4	38.1	39.6	45.7	47.8	49.9	56.0	57.5	0.2	7 47.80	— 0.54	— 7.41	— 7.46	16 7 39.80	— 0.05
	25	σ Scorpii	E.	21.0	24.0	25.6	32.3	34.6	36.9	43.7	45.5	48.4	13 34.67	— 0.84	. .	— 7.46	16 13 26.37	— 1.71
	26	α Scorpii	E.	30.2	33.2	34.9	41.5	43.7	46.0	52.9	54.6	57.5	21 43.83	— 0.88	— 7.44	— 7.46	16 21 35.49	— 0.03
	27	η Herculis . . .	E.	23.8	27.0	29.0	37.0	39.5	42.3	50.2	52.2	55.4	38 39.60	+ 0.03	— 7.46	— 7.46	16 38 32.17	+ 0.01
	28	κ Ophiuchi . . .	E.	33.8	36.4	38.0	44.3	46.3	48.4	54.5	56.3	58.8	51 46.31	— 0.38	— 7.66	— 7.46	16 51 38.47	+ 0.24
	29	ε Ursæ Minoris .	E.	49.0	9.0	20.0	6.0	20.5	36.0	21.5	32.5	51.0	59 20.61	+ 4.18	. .	— 7.46	16 59 17.33	— 1.96
	30	α^1 Herculis . . .	E.	45.7	48.3	49.8	56.1	58.2	0.3	6.6	8.2	10.9	8 58.23	— 0.32	— 7.47	— 7.46	17 8 50.45	+ 0.03
	31	ξ Ophiuchi . . .	E.	17.2	20.2	21.7	28.3	30.4	32.6	39.4	40.9	43.7	13 30.49	— 0.79	. .	— 7.47	17 13 22.23	— 1.99
	32	43 Ophiuchi . . .	E.	. .	. .	. .	28.8	31.1	33.5	37.7	39.5	42.8	15 28.72	— 0.91	. .	— 7.47	17 15 20.34	— 2.10
	33	44 Ophiuchi . . .	E.	. .	. .	39.2	41.5	43.5	45.6	47.9	. .	. .	18 43.54	— 0.84	— 7.35	— 7.47	17 18 35.23	— 0.09
	34	β Lyræ	Ha.	. .	. .	25.9	28.4	30.7	33.5	35.7	. .	. .	45 30.84	— 0.06	— 7.45	— 7.36	18 45 23.42	+ 0.12
	35	ζ Aquilæ . . .	Ha.	28.8	31.5	33.0	39.2	41.3	43.4	49.7	51.3	54.0	59 41.36	— 0.33	— 7.37	— 7.36	18 59 33.67	+ 0.09
	36	d Sagittarii . . .	Ha.	6.0	8.9	10.5	16.8	19.0	21.1	27.8	29.4	32.0	10 19.06	— 0.66	— 7.38	— 7.36	19 10 11.04	+ 0.04
	37	δ Draconis . . .	Ha.	. .	. .	30.0	35.5	40.8	46.0	51.5	. .	. .	12 40.76	+ 0.91	. .	— 7.36	19 12 34.31	— 0.08
	38	Piazzi VII, 67, S. P.	Ha.	13.5	6.5	2.4	45.3	39.7	34.1	17.2	12.9	6.2	17 39.76	— 1.61	. .	— 7.36	7 17 30.79	— 0.03
	39	κ Aquilæ. . . .	Ha.	58.0	0.6	2.2	8.3	10.4	12.5	18.7	20.3	22.8	30 10.42	— 0.59	— 7.35	— 7.36	19 30 2.47	+ 0.03
	40	γ Aquilæ. . . .	Ha.	7.9	10.4	11.9	18.2	20.2	22.3	28.6	30.2	32.6	40 20.26	— 0.37	— 7.32	— 7.36	19 40 12.53	— 0.01
	41	α Aquilæ. . . .	Ha.	29.7	22.3	23.9	40.0	42.1	44.1	50.4	52.0	54.5	44 42.11	— 0.39	— 7.30	— 7.36	19 44 34.36	— 0.02
	42	λ Ursæ Minoris .	Ha	. .	. .	7.3	56.6	47.0	37.8	25.2	. .	. .	52 46.78	. .	. .	. .	. . . .	. .
	43	α Canis Minoris .	F.	31.0	33.7	35.3	41.4	43.5	45.5	51.8	53.2	55.8	32 43.47	— 0.56	— 7.41	— 7.42	7 32 35.49	— 0.17
	44	β Geminorum . .	F.	22.0	25.0	26.8	33.8	36.0	38.4	45.2	47.0	49.9	37 36.01	— 0.22	— 7.41	— 7.42	7 37 28.37	— 0.04
27	45	Sun I, N. . . .	F.	45.2	48.0	49.4	55.9	58.2	0.4	6.8	8.2	11.2	27 58.14	— 0.37	. .	— 7.43	8 27 50.34	. .
	46	Sun II, N. . . .	F.	59.2	1.9	3.4	10.0	12.2	14.2	21.0	22.6	25.2	30 12.19	— 0.36	. .	— 7.43	8 30 4.40	. .
	47	α Leonis	F.	28.4	30.8	32.6	38.8	40.9	42.9	49.2	50.8	53.4	1 40.87	— 0.46	— 7.49	— 7.45	10 1 32.96	0.00
	48	γ^1 Leonis	F.	49.2	52.0	53.6	0.2	2.4	4.6	11.0	12.9	15.4	13 2.37	— 0.35	— 7.51	— 7.45	10 12 54.57	+ 0.04
	49	α Ursæ Majoris . .	F.	. .	. .	46.0	50.3	54.7	58.9	3.4	. .	. .	55 54.66	+ 0.69	. .	— 7.46	10 55 47.89	+ 0.09
	50	B. A. C. 5853 . .	F.	. .	. .	36.3	39.6	42.6	45.8	49.0	. .	. .	13 42.66	+ 0.21	. .	— 7.54	17 13 35.33	— 1.93

33. Bisections at wires V and VI.
50. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	302 58	0.8	28.0	18.5	25.3	34	. .	. .	. .	146	150	53.2	56 57 20.5	660	+ 1 25.8	108 5 7.5	+ 1.7
2	313 44	5.1	3.1	24.0	29.7	33	. .	390	. .	406	. .	53.2	46 11 14.0	670	+ 58.3	97 18 33.5	+ 2.4
3	331 22	2.5	0.5	20.7	25.9	40	. .	020	. .	026	. .	53.2	28 34 52.9	. .	+ 30.5	79 41 44.6	+ 0.1
4	302 26	7.1	4.7	25.0	1.1	35	803	. .	. .	. .	825	53.2	57 29 52.6	. .	+ 1 27.5	108 37 41.3	+ 1.6
5	331 54	5.3	4.0	23.9	28.6	32	. .	030	. .	055	. .	53.2	28 0 53.3	658	+ 29.8	79 7 44.3	+ 0.4
6	33 8	4.0	3.5	23.0	27.0	37	. .	. .	. .	980	. .	53.2	326 48 24.4	. .	− 36.6	17 54 9.0	+ 1.0
7	5 52	0.4	0.6	21.4	24.1	37	. .	700	. .	770	. .	53.2	354 4 17.2	. .	− 5.8	45 10 32.6	+ 0.3
8	311 36	7.6	7.0	26.2	3.4	37	. .	050	. .	050	. .	53.2	48 20 13.2	655	+ 1 2.8	99 27 37.2	+ 1.5
9	359 10	10.5	8.7	29.5	4.4	37	. .	300	. .	298	. .	53.2	0 46 19.6	. .	+ 0.8	51 52 41.6	+ 1.8
10	350 44	8.9	7.0	27.8	2.0	33	. .	318	. .	336	. .	53.2	9 11 16.6	670	+ 9.0	60 17 46.8	+ 0.5
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24	317 42	12.1	9.8	1.5	5.3	38	. .	690	. .	726	. .	49.5	42 14 38.6	. .	+ 49.2	93 21 49.0	+ 2.3
25	295 48	19.0	17.0	7.0	12.7	39	. .	515	. .	525	. .	49.5	64 8 57.7	532	+ 1 51.2	115 17 10.1	− 8.3
26	294 56	15.3	13.8	5.5	10.1	38	. .	300	. .	345	. .	49.5	65 0 36.6	. .	+ 1 55.7	116 8 53.5	+ 1.7
27	0 12	14.0	13.5	5.4	10.0	34	. .	035	. .	015	. .	49.5	359 43 30.5	. .	− 0.3	50 49 51.4	+ 2.6
28	330 38	16.0	14.8	7.0	10.2	38	. .	030	. .	060	. .	49.5	29 18 33.3	540	+ 30.5	80 25 25.0	+ 2.0
29																	
30	335 36	14.7	12.2	3.5	6.5	39	. .	550	. .	560	. .	49.5	24 20 53.8	. .	+ 24.6	75 27 39.6	+ 1.3
31	300 6	17.7	15.7	6.2	11.8	38	. .	035	. .	045	. .	49.5	59 50 33.9	. .	+ 1 33.2	110 58 28.3	− 4.7
32	293 4	14.3	11.8	2.7	6.6	38	. .	. .	. .	525	515	49.5	66 52 37.1	. .	+ 2 6.4	118 1 4.7	− 6.4
33	297 2	8.5	6.0	28.0	2.7	41	. .	. .	360	380	. .	49.5	62 55 16.0	548	+ 1 45.9	114 3 23.1	+ 2.0
34																	
35																	
36																	
37																	
38																	
39																	
40																	
41																	
42																	
43	326 36	2.5	0.3	19.0	27.8	36	. .	482	. .	478	. .	50.6	33 19 55.8	. .	+ 36.0	84 26 52.0	+ 0.2
44	349 22	2.5	29.7	22.0	26.2	34	. .	612	. .	616	. .	50.6	10 33 27.4	556	+ 10.2	61 39 58.8	+ 2.0
45	340 22	11.5	9.5	0.0	3.5	36	756	800	. .	. .	. .	50.6	19 34 9.6	. .	+ 19.4	70 40 50.2	
46	339 50	11.0	9.7	0.6	6.2	35	. .	. .	. .	146	076	50.6	20 5 44.0	570	+ 20.0	71 12 25.2	
47	333 38	4.2	2.7	24.0	27.5	35	. .	. .	. .	232	224	50.6	26 17 38.7	. .	+ 26.8	77 24 26.7	+ 1.6
48	341 32	3.3	3.3	24.2	26.3	36	. .	660	. .	674	. .	50.6	18 24 0.6	542	+ 18.0	69 30 39.8	+ 2.3
49	23 28	9.5	9.9	0.6	3.9	33	. .	. .	. .	840	850	50.6	336 27 24.8	. .	− 24.3	27 33 21.7	− 0.3
50	10 52	6.1	5.6	27.0	3.3	36	000	994	. .	. .	. .	49.8	349 3 53.2	. .	− 10.8	40 10 3.6	+ 9.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
2	. .	. .	68.8
10	. .	. .	69.0
44	. .	. .	79.8
45	30.019	79.5	83.0
48	. .	. .	85.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
45	− 3.0	+ 15 47.5	. .	+ 15 44.5
46	− 3.0	− 15 47.5	. .	− 15 50.5

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
July 27	1	θ Ophiuchi	F.	..	..	..	..	..	..	..	30.2	33.1	14 19.54	— 0.97	. .	— 7.54	17 14 11.03	— 2.04
	2	44 Ophiuchi	F.	30.4	33.0	34.8	41.6	43.8	46.0	52.7	54.3	57.2	18 43.76	— 0.96	— 7.46	— 7.54	17 18 35.26	— 0.05
	3	Anonymous	F.	58.6	1.4	3.0	9.5	11.7	14.0	20.5	22.1	24.7	5 11.72	— 0.91	. .	— 7.55	18 5 3.26	— 2.20
	4	ε Sagittarii	F.	36.9	40.0	41.7	49.0	51.6	54.1	1.5	3.3	6.4	15 51.61	— 1.16	. .	— 7.55	18 15 42.90	— 2.52
	5	21 Sagittarii	F.	41.0	43.9	45.6	52.1	54.4	56.6	2.9	4.6	7.4	17 54.28	— 0.90	. .	— 7.55	18 17 45.83	— 2.24
	6	B. A. C. 6256	F.	14.2	17.4	19.2	26.2	28.6	31.0	38.2	40.0	43.1	19 28.66	— 1.10	. .	— 7.55	18 19 20.01	— 2.46
	7	Anonymous	F.	12.5	16.0	17.9	25.7	28.2	30.7	38.4	40.4	43.7	25 28.17	— 1.24	. .	— 7.55	18 25 19.38	— 2.65
	8	Anonymous	F.	33.5	36.5	43.7	46.0	48.8	51.4	54.1	1.3	4.4	26 48.86	— 1.25	. .	— 7.55	18 26 40.06	— 2.66
	9	B. A. C. 6365	F.	..	..	..	..	..	..	..	..	..	. . .	. .	. .	. .	. . . .	. .
	10	B. A. C. 6393	F.	..	..	..	..	..	..	..	..	..	. . .	. .	. .	. .	. . . .	. .
	11	B. A. C. 6410	F.	..	..	..	..	..	..	..	..	..	. . .	. .	. .	. .	. . . .	. .
	12	o Sagittarii	F.	58.4	1.1	2.8	9.3	11.4	13.6	20.4	22.0	24.7	57 11.52	— 0.92	. .	— 7.56	18 57 3.04	— 2.37
	13	B. A. C. 6527	F.	13.2	15.8	17.4	24.0	26.1	28.2	34.7	36.3	39.0	59 26.08	— 0.33	. .	— 7.56	18 59 18.19	— 2.04
	14	ψ Sagittarii	F.	39.0	41.8	43.3	50.1	52.4	54.7	1.3	3.0	5.9	7 52.39	— 0.99	. .	— 7.56	19 7 43.84	— 2.46
	15	d Sagittarii	F.	6.5	9.2	10.8	17.3	19.5	21.7	28.2	29.8	32.5	10 19.50	— 0.88	— 7.59	— 7.56	19 10 11.06	+ 0.05
	16	B. A. C. 6607	F.	55.3	58.0	59.9	6.5	8.7	11 0	17.6	19.2	21.9	13 8.68	— 0.94	. .	— 7.56	19 13 0.18	— 2.41
	17	γ Aquilæ	F.	..	..	..	..	22.7	24.7	28.9	30.4	33.0	40 20.58	— 0.44	— 7.57	— 7.57	19 40 12.57	+ 0.03
	18	α Aquilæ	F.	30.0	32.7	34.2	40.4	42.5	44.5	50.7	52.3	55.0	44 42.48	— 0.47	— 7.59	— 7.57	19 44 34.44	+ 0.06
	19	λ Ursæ Minoris	F.	..	..	..	53.0	38.0	28.0	17.0	..	..	52 39.20	. .	. .	. .	. . . .	. .
	20	π Capricorni	Ha.	57.1	0.0	1.5	8.1	10.2	12.2	18.5	20.3	22.9	20 10.09	— 0.87	— 7.26	— 7.42	20 20 1.80	— 0.13
	21	ε Delphini	Ha.	3.5	6.1	7.5	13.7	15.9	18.0	24.2	25.8	28.3	27 15.89	— 0.44	— 7.46	— 7.42	20 27 8.03	+ 0.09
	22	μ Aquarii	Ha.	43.0	45.6	47.2	53.4	55.5	57.5	3.7	5.3	7.9	45 55.46	— 0.73	— 7.55	— 7.42	20 45 47.31	+ 0.20
	23	ν Cygni	F.	17.7	21.0	23.0	31.2	33.9	36.5	41.7	46.6	50.0	52 33.84	+ 0.05	— 7.54	— 7.58	20 52 26.31	+ 0.02
28	24	β Lyræ	Ha.	..	26.4	28.7	31.1	33.6	36.0	40.9	42.8	45.9	45 31.18	— 0.02	— 7.84	— 7.81	18 45 23.35	+ 0.06
	25	ζ Aquilæ	Ha.	29.4	31.9	33.4	39.7	41.8	43.9	50.3	51.8	54.4	59 41.84	— 0.33	— 7.85	— 7.81	18 59 33.70	+ 0.12
	26	d Sagittarii	Ha.	6.8	9.4	11.0	17.6	19.7	21.7	28.4	30.0	32.7	10 19.70	— 0.81	— 7.86	— 7.82	19 10 11.07	+ 0.06
	27	δ Aquilæ	Ha.	0.9	3.5	5.0	8.9	13.1	17.3	21.3	22.8	25.6	19 13.16	— 0.48	— 7.89	— 7.82	19 19 4.86	+ 0.12
	28	κ Aquilæ	Ha.	58.5	1.2	2.7	9.0	11.0	13.0	19.2	20.7	23.3	30 10.96	— 0.62	— 7.85	— 7.82	19 30 2.52	+ 0.07
	29	γ Aquilæ	Ha.	8.3	10.8	12.4	18.7	20.6	22.8	29.1	30.7	33 2	40 20.73	— 0.37	— 7.78	— 7.83	19 40 12.53	— 0.02
	30	α Aquilæ	Ha.	30.2	32.9	34.4	40.7	42.7	44.8	50.9	52.4	55.0	44 42.67	— 0.60	— 7.64	— 7.83	19 44 34.24	— 0.05
	31	λ Ursæ Minoris	Ha.	..	..	2.0	51.0	39.0	27.0	19.0	..	..	52 39.60	. .	. .	. .	. . . .	. .
29	32	μ^1 Sagittarii	Ha.	4.6	7.4	8.9	15.5	17.8	20.0	26.5	28.0	30.9	6 17.73	— 0.89	— 8.13	— 8.14	18 6 8.70	— 0.01
	33	η Serpentis	Ha.	39.9	42.3	43.8	50.0	52.0	54.0	0.3	1.7	4.1	14 52.01	— 0.60	— 8.21	— 8.14	18 14 43.27	+ 0.13
	34	α Lyræ	Ha.	30.8	34.0	36.0	43.9	46.5	49.0	56.9	58.8	2.2	32 46.46	+ 0.06	— 8.16	— 8.15	18 32 38.37	+ 0.03
	35	51 Cephei, S. P.	Ha.	..	..	15.0	33.5	50.0	9.0	25.5	..	..	39 50.60	. .	. .	. .	. . . .	. .
	36	β Lyræ	Ha.	16.8	19.8	21.7	29.0	31.5	34.0	41.3	43.0	46.1	45 31.47	— 0.05	— 8.11	— 8.15	18 45 23.27	— 0.01
	37	ζ Aquilæ	Ha.	29.6	32.2	33.8	40.0	42.2	44.4	50.6	52.2	54.8	59 42.20	— 0.36	— 8.18	— 8.15	18 59 33.69	+ 0.11
	38	d Sagittarii	Ha.	7.1	9.7	11.5	17.9	20.0	22.2	28.7	30.3	33.1	10 20.06	— 0.86	— 8.17	— 8.15	19 10 11.05	+ 0.04
	39	δ Aquilæ	Ha.	1.2	3.7	5.3	11.5	13.5	15.5	21.7	23.2	25.8	19 13.49	— 0.52	— 8.18	— 8.16	19 19 4.81	+ 0.07
	40	κ Aquilæ	Ha.	58.9	1.5	3.0	9.3	11.3	13.4	19.6	21.0	23.6	30 11.29	— 0.66	— 8.14	— 8.16	19 30 2.47	+ 0.02
	41	γ Aquilæ	Ha.	8.5	11.2	12.8	18.9	21.0	23.2	29.5	30.9	33.5	40 21.06	— 0.41	— 8.07	— 8.16	19 40 12.49	— 0.06
	42	α Canis Majoris	E.	26.2	28.8	30.5	37.0	. .	41.2	47.6	49.2	52.0	39 39.06	— 0.68	— 8.64	— 8.62	6 39 29.76	— 0.06
	43	α^2 Geminorum	E.	19.5	22.4	24.3	31.6	34.0	36.4	43.7	45.5	48.5	26 33.99	— 0.07	— 8.54	— 8.63	7 26 25.29	+ 0.15
	44	α Canis Minoris	E.	32.3	34.8	36.5	42.5	44.6	46.5	52.8	54.4	56.7	32 44.57	— 0.40	— 8.62	— 8.63	7 32 35.54	— 0.17
	45	β Geminorum	E.	23.2	26.0	27.9	34.8	37.2	39.4	46.4	48.1	51.1	37 37.12	— 0.13	— 8.55	— 8.63	7 37 28.36	— 0.11
30	46	Sun I, N.	E.	30.6	33.3	34.9	41.3	43.5	45.8	52.2	53.8	56.6	39 43.56	— 0.25	. .	— 8.63	8 38 34.68	. .
	47	Sun II, S.	E.	44.0	46.6	48.3	54.8	56.9	59.0	5.5	7.3	9.9	41 56.92	— 0.25	. .	— 8.63	8 41 48.04	. .
	48	α Leonis	E.	..	..	..	..	..	..	..	..	..	. . .	. .	. .	. .	. . . .	. .
	49	Mercury I, C.	E.	38.2	39.9	44.0	46.0	48.2	50.1	52.4	56.4	58.0	25 48.13	— 0.36	. .	— 8.64	10 25 39.13	+ 0.24

11, 15. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	296 12	2.7	29.5	20.4	28.2	36	. .	. .	. .	730	764	49.8	63 43 59.1	. .	+ 1 52.7	114 52 13.0	− 5.7
2	297 2	3.5	1.0	20.8	28.5	41	. .	. .	. .	435	452	49.8	62 55 12.0	638	+ 1 48.7	114 3 21.9	+ 0.7
3	300 2	8.1	4.4	23.9	1.4	32	. .	. .	. .	490	494	49.8	59 52 58.0	. .	+ 1 36.4	111 0 55.6	+ 2.3
4	286 38	10.9	7.9	26.9	5.5	33	. .	084	. .	036	. .	49.8	73 17 10.1	. .	+ 3 4.5	124 26 35.8	− 8.5
5	300 28	12.7	8.8	27.9	5.9	38	. .	. .	. .	430	450	49.8	59 28 33.7	. .	+ 1 34.9	110 36 29.8	− 1.6
6	289 28	12.4	9.3	28.1	6.0	33	. .	. .	. .	592	594	49.8	70 27 19.3	. .	+ 2 36.7	121 36 17.2	− 3.5
7	283 18	10.5	7.2	26.0	3.2	35	810	790	. .	. .	. .	49.8	76 37 51.0	. .	+ 3 51.4	127 48 3.6	− 4.2
8	283 8	6.6	3.8	22.5	29.8	44	. .	. .	. .	618	612	49.8	76 50 2.7	. .	+ 3 55.0	128 0 18.9	− 4.2
9	359 18	5.0	4.5	24.8	29.0	38	. .	. .	. .	820	824	49.8	0 38 34.7	. .	+ 0.6	51 44 56.5	+ 6.4
10	23 40	5.3	4.7	24.3	28.9	38	. .	. .	. .	820	830	49.8	336 16 35.4	. .	− 24.7	27 22 31.9	+ 7.0
11	21 56	3.0	2.8	23.4	27.4	33	. .	. .	. .	236	220	49.8	337 59 6.8	. .	− 22.7	29 5 5.3	+ 6.9
12	299 8	9.2	7.8	27.5	4.8	34	. .	614	. .	618	. .	49.8	60 47 33.6	. .	+ 1 40.3	111 55 35.1	+ 0.3
13	340 0	1.6	1.1	20.4	26.4	36	. .	938	. .	948	. .	49.8	19 56 2.2	. .	+ 20.4	71 2 43.8	+ 4.9
14	295 36	7.2	5.8	23.8	0.6	37	. .	190	. .	180	. .	49.8	64 20 10.1	. .	+ 1 56.6	115 28 27.9	+ 0.5
15	301 52	3.7	0.7	21.4	27.5	32	108	. .	. .	. .	128	49.8	58 2 48.9	. .	+ 1 30.0	109 10 40.1	+ 2.7
16	298 26	7.7	6.1	25.3	1.9	37	. .	144	. .	164	. .	49.8	61 30 10.5	. .	+ 1 43.4	112 38 15.1	+ 1.2
17	331 20	3.2	1.0	21.0	25.4	32	. .	. .	. .	380	396	49.8	28 34 52.4	. .	+ 30.7	79 41 44.3	+ 0.6
18	329 34	5.7	3.5	24.0	28.4	33	. .	050	. .	038	. .	49.8	30 21 5.2	. .	+ 33.1	81 27 59.5	+ 0.2
19	49 56	2.3	1.6	22.3	26.0	34	. .	284	254	250	250	49.8	309 59 21.7	686	− 1 7.2	1 4 35.7	+ 0.3
20	302 26	9.8	8.0	28.1	2.6	35	. .	715	. .	690	. .	49.8	57 29 50.1	. .	+ 1 28.6	108 37 39.9	+ 0.4
21	331 54	8.6	7.5	26.1	0.5	31	. .	970	. .	965	. .	49.8	28 0 51.5	. .	+ 30.1	79 7 42.8	− 0.4
22	311 36	4.7	2.3	22.0	28.5	37	. .	422	. .	418	. .	49.8	48 20 11.3	. .	+ 1 3.6	99 27 36.1	+ 0.7
23	1 42	1.6	1.5	22.6	24.6	33	. .	. .	. .	320	306	49.8	358 13 6.9	700	− 1.8	49 19 26.3	+ 1.9
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42	304 32	12.0	9.5	0.0	5.8	39	. .	070	. .	130	. .	51.1	55 24 45.8	. .	+ 1 19.0	106 32 26.0	+ 1.3
43	353 12	10.0	8.5	28.5	3.5	34	. .	270	. .	250	. .	51.1	6 43 30.1	572	+ 6.4	57 49 57.7	+ 0.5
44	326 36	14.0	11.8	1.8	8.2	35	. .	705	. .	645	. .	51.1	33 19 55.5	. .	+ 35.9	84 26 52.6	+ 1.0
45	349 22	11.5	9.8	1.0	5.0	33	950	948	. .	982	960	51.1	10 33 27.2	562	+ 10.2	61 39 58.6	+ 1.6
47	339 40	1.7	29.8	20.1	27.0	40	550	550	. .	. .	. .	51.1	20 16 59.1	536	+ 20.0	71 23 40.3	
48	339 8	2.2	0.2	20.1	26.7	39	. .	. .	. .	072	040	51.1	20 48 35.5	. .	+ 20.6	71 55 17.3	
49	333 38	9.8	8.7	0.0	6.6	34	. .	740	. .	690	. .	51.1	26 17 38.1	518	+ 26.7	77 24 26.0	+ 0.9
50	330 0	8.1	6.5	25.8	4.0	40	. .	510	. .	560	. .	51.1	29 57 4.8	. .	+ 31.1	81 3 57.1	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
19	. .	. .	66.0
23	. .	. .	64.0
46	. .	. .	88.6

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
46	− 3.0	+ 15 48.5	. .	+ 15 45.4
47	− 3.1	− 15 48.5	. .	− 15 51.6
49	− 4.8	. .	0.0	− 4.8

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
July 30	1	α^1 Herculis . . .	E.	46.6	49.4	50.9	57.3	59.4	1.5	7.8	9.4	12.0	8 59.37	— 0.30	— 8.67	— 8.68	17 8 50.39	+ 0.01
	2	θ Ophiuchi . . .	E.	. .	. .	15.9	18.3	20.5	22.7	25.0	. .	. .	14 20.48	— 0.79	. .	— 8.68	17 14 11.01	— 2.02
	3	43 Ophiuchi . . .	E.	. .	. .	25.3	27.7	30.0	32.4	34.7	. .	. .	15 30.02	— 0.84	. .	— 8.68	17 15 20.50	— 2.07
	4	44 Ophiuchi . . .	E.	31.4	34.3	36.0	42.5	44.8	47.2	53.8	55.5	58.4	18 44.88	— 0.78	— 8.78	— 8.68	17 18 35.42	+ 0.13
	5	α Ophiuchi . . .	E.	57.8	0.4	2.0	8.2	10.3	12.4	18.7	20.3	23.0	29 10.34	— 0.32	— 8.64	— 8.68	17 29 1.34	— 0.01
	6	μ Herculis . . .	E.	23.7	26.7	28.4	35.3	37.6	39.9	46.9	48.6	51.5	41 37.62	— 0.13	— 8.71	— 8.68	17 41 28.81	+ 0.03
	7	δ Ursæ Minoris .	E.	. .	. .	41.0	17.0	50.0	26.0	59.5	. .	. .	13 50.70	+ 8.04	. .	— 8.68	18 13 50.06	— 0.65
	8	21 Sagittarii . . .	E.	42.1	44.9	46.6	53.0	55.4	57.6	4.0	5.7	8.5	17 55.31	— 0.72	. .	— 8.69	18 17 45.90	— 2.23
	9	B. A. C. 6287 . .	E.	39.0	41.7	43.5	49.9	52.0	54.3	0.7	2.2	5.0	22 52.03	— 0.70	. .	— 8.69	18 22 42.64	— 2.22
	10	B. A. C. 6311 . .	E.	42.0	47.5	50.4	2.5	6.5	10.5	22.5	25.6	30.6	25 6.46	+ 0.51	. .	— 8.69	18 24 58.28	— 2.46
	11	B. A. C. 6322 . .	E.	. .	. .	32.9	35.3	37.4	39.6	41.9	. .	. .	27 37.42	— 0.19	. .	— 8.69	18 27 28.54	— 1.96
	12	B. A. C. 6365 . .	E.	46.9	50.4	52.4	0.1	2.6	5.4	13.0	15.0	18.2	36 2.67	+ 0.02	. .	— 8.69	18 35 54.00	— 1.89
	13	51 Cephei, S. P. . .	E.	. .	. .	10.5	28.0	46.5	6.5	. .	. .	. .	39 46.72	— 10.53	. .	— 8.69	6 39 27.50	— 0.77
	14	33 Sagittarii . . .	E.	19.7	22.3	24.2	30.6	33.0	35.2	41.7	43.3	46.2	46 32.91	— 0.74	. .	— 8.69	18 46 23.48	— 2.34
	15	ζ Aquilæ. . . .	E.	30.0	32.7	34.4	40.6	42.6	44.7	51.0	52.6	55.3	59 42.66	— 0.31	— 8.69	— 8.69	18 59 33.66	— 0.08
	16	Saturn I, N. . .	E.	11.0	13.9	15.4	. .	. .	. .	33.0	34.8	37.6	11 24.28	— 0.75	. .	— 8.69	19 11 14.84	. .
	17	Saturn II, S. . .	E.	. .	. .	21.2	23.3	25.6	27.8	30.0	. .	7.9	11 25.58	— 0.75	. .	— 8.69	19 11 16.14	. .
	18	δ Aquilæ. . . .	E.	1.6	4.3	5.9	12.0	. .	16.0	22.2	23.8	26.3	19 14.01	— 0.43	— 8.79	— 8.69	19 19 4.89	+ 0.15
	19	τ Aquilæ. . . .	Ha.	51.9	54.5	55.9	2.2	4.2	6.2	12.3	13.9	16.5	58 4.18	— 0.38	— 8.44	— 8.46	19 57 55.34	0.00
	20	α^2 Capricorni . .	Ha.	. .	. .	4.2	6.3	8.5	10.7	12.7	. .	. .	11 8.48	— 0.62	— 8.45	— 8.46	20 10 59.40	+ 0.03
	21	π Capricorni . .	Ha.	. .	. .	6.8	9.1	11.3	13.3	15.5	. .	. .	20 11.20	— 0.70	— 8.51	— 8.46	20 20 2.04	+ 0.08
	22	ε Delphini . . .	Ha.	4.3	6.8	8.4	. .	. .	. .	25.3	26.7	29.3	27 16.80	— 0.34	— 8.45	— 8.46	20 27 8.00	+ 0.04
31	23	κ Ophiuchi . . .	F.	34.9	37.5	39.0	45.2	47.3	49.5	55.7	57.2	59.7	51 47.33	— 0.62	— 8.49	— 8.51	16 51 38.20	+ 0.02
	24	d Herculis . . .	F.	48.7	51.8	53.5	0.8	3.4	5.8	13.0	15.0	18.1	57 3.34	— 0.25	. .	— 8.51	16 56 54.58	+ 0.24
	25	α^1 Herculis . . .	F.	46.9	49.5	51.0	57.5	59.4	1.6	7.9	9.5	12.0	8 59.48	— 0.55	— 8.54	— 8.51	17 8 50.42	+ 0.05
	26	θ Ophiuchi . . .	F.	7.0	9.9	11.6	18.4	20.6	22.9	29.8	31.4	34.1	14 20.63	— 1.16	. .	— 8.51	17 14 10.96	— 2.01
	27	43 Ophiuchi . . .	F.	. .	25.4	27.6	30.0	32.3	34.6	39.3	41.0	43.9	15 29.99	— 1.25	. .	— 8.51	17 15 20.23	— 2.07
	28	Anonymous . .	F.	59.5	2.4	4.2	10.7	12.9	15.0	21.7	23.4	26.0	5 12.87	— 1.09	. .	— 8.52	18 5 3.26	— 2.19
	29	ε Sagittarii . . .	F.	38.0	41.4	43.2	50.4	52.9	55.3	2.8	4.6	7.9	15 52.94	— 1.38	. .	— 8.52	18 15 43.04	— 2.50
	30	21 Sagittarii . . .	F.	. .	. .	51.2	53.3	55.5	57.6	59.8	. .	. .	17 55.48	— 1.09	. .	— 8.52	18 17 45.87	— 2.23
	31	B. A. C. 6256 . .	F.	15.5	18.7	20.6	25.0	29.8	34.7	39.8	41.3	44.2	19 29.96	— 1.31	. .	— 8.52	18 19 20.13	— 2.44
	32	B. A. C. 6322 . .	F.	24.1	27.0	28.6	35.3	37.5	39.7	46.4	48.0	51.0	27 37.51	— 0.42	. .	— 8.52	18 27 28.57	— 1.95
	33	B. A. C. 6365 . .	F.	47.0	50.2	52.2	0.0	2.5	5.3	13.0	14.8	18.2	36 2.58	— 0.16	. .	— 8.52	18 35 53.92	— 2.04
	34	ϕ Sagittarii . . .	F.	37.8	40.5	42.4	49.3	51.5	53.8	0.7	2.5	5.4	37 51.54	— 1.21	. .	— 8.52	18 37 41.81	— 2.41
	35	B. A. C. 6393 . .	F.	. .	. .	50.9	55.2	59.7	4.3	8.5	. .	. .	39 59.72	+ 0.64	. .	— 8.52	18 39 51.84	— 2.64
	36	33 Sagittarii . . .	F.	19.8	22.6	24.2	30.8	33.0	35.3	41.9	43.6	46.2	46 33.04	— 1.11	. .	— 8.52	18 46 23.41	— 2.33
	37	ξ^1 Sagittarii . . .	F.	45.6	47.2	51.6	53.8	56.0	58.2	0.2	4.7	6.3	49 55.96	— 1.10	. .	— 8.52	18 49 46.34	— 2.33
	38	τ Sagittarii . . .	F.	55.1	58.1	0.0	6.9	9.0	11.3	18.2	19.9	22.8	59 9.03	— 1.23	. .	— 8.52	18 58 59.28	— 2.50
	39	π Sagittarii . . .	F.	7.9	10.6	12.3	18.9	21.0	23.2	29.9	31.4	34.2	2 21.04	— 1.10	. .	— 8.52	19 2 11.42	— 2.37
	40	ψ Sagittarii . . .	F.	40.0	42.7	44.5	51.3	53.5	55.8	2.6	4.3	7.2	7 53.54	— 1.18	. .	— 8.52	19 7 43.84	— 2.47
	41	Saturn I, S. . .	F.	54.7	57.3	59.0	. .	. .	. .	16.5	18.2	21.0	11 7.78	— 1.12	. .	— 8.52	19 10 58.14	. .
	42	Saturn II, N. . .	F.	. .	. .	4.7	7.0	9.2	11.5	13.6	. .	. .	11 9.20	— 1.12	. .	— 8.52	19 10 59.56	. .
	43	δ Aquilæ. . . .	F.	1.8	4.4	5.9	12.0	14.0	16.0	22.2	23.8	26.2	19 14.03	— 0.72	— 8.52	— 8.52	19 19 4.79	+ 0.05
	44	Anonymous . .	F.	. .	. .	32.7	35.4	38.0	40.7	43.5	. .	. .	29 38.06	— 1.52	. .	— 8.52	19 29 28.02	— 2.92
	45	γ Aquilæ. . . .	F.	9.2	11.9	13.4	19.6	21.7	23.7	30.2	31.6	34.2	40 21.72	— 0.62	— 8.51	— 8.53	19 40 12.57	+ 0.01
	46	α Aquilæ. . . .	F.	31.2	33.9	35.5	41.5	43.6	45.6	51.9	53.4	56.0	44 43.62	— 0.64	— 8.54	— 8.53	19 44 34.45	+ 0.05
	47	β Aquilæ. . . .	F.	0.5	3.2	4.7	10.9	12.9	15.0	21.1	22.6	25.2	49 12.90	— 0.68	— 8.53	— 8.53	19 49 3.69	+ 0.03
	48	λ Ursæ Majoris . .	F.	. .	. .	. .	. .	40.0	28.0	16.0	. .	. .	52 39.33	. .	. .	. .	. . . .	. .
	49	α^2 Capricorni. . .	Ha.	56.3	58.8	0.4	6.7	8.7	10.8	17.0	18.6	21.3	11 8.73	— 0.96	— 8.36	— 8.38	20 11 59.39	+ 0.02

3, 10, 11, 31, 35. Bisections at sets B and D.
26, 30. Bisections at wires V and VI.
37. Telescope micrometer reading decreased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	335 36	12.6	11.6	2.7	8.8	39	. .	520	. .	470	. .	50.3	24 20 53.3	602	+ 24.9	75 27 39.4	+ 1.6
2	296 12	13.5	11.5	2.0	10.3	35	085	115	. .	. .	. .	50.3	63 44 1.3	. .	+ 1 51.1	114 52 13.6	— 5.8
3	293 4	11.5	8.5	28.5	7.2	38	463	. .	. .	. .	465	50.3	66 52 34.8	. .	+ 2 8.1	118 1 4.1	— 6.6
4	297 2	13.9	11.6	1.9	9.6	40	. .	870	. .	860	. .	50.3	62 55 14.4	. .	+ 1 47.4	114 3 23.0	+ 1.8
5	333 42	15.8	13.5	5.0	10.4	35	. .	164	. .	162	. .	50.3	26 13 49.0	. .	+ 27.2	77 20 37.4	+ 0.5
6	348 50	12.0	10.3	2.3	8.0	34	. .	240	. .	220	. .	50.3	11 5 31.7	. .	+ 10.8	62 12 3.7	+ 0.8
7	47 38	12.6	12.5	3.8	10.0	36	500	. .	525	. .	520	50.3	312 18 8.3	. .	— 1 0.7	3 23 28.8	+ 0.8
8	300 28	15.5	12.6	2.3	10.7	38	. .	150	. .	142	. .	50.3	59 28 33.7	. .	+ 1 33.6	110 36 28.5	— 1.7
9	302 16	15.5	12.5	2.5	9.8	38	. .	510	. .	500	. .	50.3	57 40 39.1	. .	+ 1 27.3	108 48 27.6	— 1.0
10	20 40	15.0	14.6	5.0	9.0	37	028	. .	. .	. .	056	50.3	339 16 17.7	. .	— 21.0	30 22 17.9	+ 8.4
11	344 34	14.5	12.5	2.2	7.0	35	590	. .	. .	. .	640	50.3	15 21 53.8	. .	+ 15.2	66 28 30.2	+ 6.0
12	359 18	17.0	16.2	7.1	11.7	37	. .	960	. .	930	. .	50.3	0 38 33.8	. .	+ 0.6	51 44 55.6	+ 7.2
13	53 46	9.2	9.1	0.8	4.8	32	560	. .	520	. .	. .	50.3	306 9 3.3	. .	— 1 15.7	357 14 8.8	0.0
14	299 34	12.8	10.8	1.2	8.4	39	. .	465	. .	525	. .	50.3	60 22 52.5	634	+ 1 37.2	111 30 50.9	— 0.1
15	334 44	13.7	13.5	5.0	8.6	38	. .	396	. .	370	. .	50.3	25 12 37.5	. .	+ 26.1	76 19 24.8	+ 0.7
16	298 48	18.6	18.0	8.0	14.5	31	. .	760	. .	690	. .	50.3	61 6 59.6	. .	+ 1 40.2	112 15 1.0	
17	298 48	18.6	18.0	8.0	14.5	33	080	. .	. .	. .	050	50.3	61 7 20.0	. .	+ 1 40.3	112 15 21.5	
18	323 54	14.3	13.5	2.2	9.5	32	. .	874	. .	830	. .	50.3	36 1 12.1	. .	+ 40.4	87 8 13.7	+ 0.3
19																	
20																	
21																	
22																	
23	330 38	2.8	1.3	22.0	29.3	38	. .	786	. .	810	. .	50.5	29 18 32.8	. .	+ 30.8	80 25 24.8	+ 2.3
24	354 48	5.2	3.0	25.3	2.0	36	. .	942	. .	950	. .	50.5	5 8 7.0	580	+ 4.9	56 14 33.1	+ 0.9
25	335 36	6.5	4.6	26.3	2.4	32	. .	126	. .	112	. .	50.5	24 18 53.8	. .	+ 24.8	75 25 39.8	+ 2.1
26	296 12	6.3	3.8	24.3	3.4	36	. .	. .	716	710	. .	50.5	63 44 3.7	. .	+ 1 50.9	114 52 15.8	— 5.8
27	293 4	6.7	29.8	20.5	29.8	39	. .	. .	. .	122	126	50.5	66 52 37.7	. .	+ 2 7.8	118 1 6.7	— 6.6
28	300 2	3.4	0.2	21.0	28.8	32	. .	908	. .	900	. .	50.5	59 53 1.5	. .	+ 1 34.7	111 0 57.4	— 2.4
29	286 38	7.2	3.6	24.2	1.5	33	520	524	. .	. .	. .	50.5	73 17 14.1	. .	+ 3 1.2	124 26 36.5	— 4.6
30	300 28	5.7	2.0	21.8	2.3	38	. .	. .	770	782	. .	50.5	59 27 33.9	. .	+ 1 33.2	110 35 28.3	— 1.7
31	289 28	3.4	0.2	20.5	1.2	34	288	. .	. .	. .	262	50.5	70 27 23.1	. .	+ 2 33.9	121 36 18.2	— 3.8
32	344 34	2.7	0.4	20.9	26.7	36	. .	. .	. .	404	404	50.5	15 21 54.9	604	+ 15.2	66 28 31.3	+ 6.2
33	359 18	9.0	6.8	27.9	4.6	38	396	412	. .	. .	. .	50.5	0 38 32.9	. .	+ 0.6	51 44 54.7	+ 7.4
34	293 58	4.3	0.4	21.8	29.1	39	. .	864	. .	764	. .	50.5	65 58 48.2	. .	+ 2 3.1	117 7 12.5	— 1.8
35	23 40	1.4	29.4	19.2	26.0	39	. .	022	. .	028	. .	50.5	336 16 33.9	. .	— 24.3	27 22 30.8	+ 8.1
36	299 32	6.6	4.4	23.3	3.2	32	. .	040	. .	036	. .	50.5	60 22 51.8	. .	+ 1 36.8	111 30 49.8	— 0.3
37	300 14	11.0	7.0	27.2	6.2	34	. .	. .	. .	706	704	50.5	59 41 20.7	. .	+ 1 34.1	110 49 16.0	0.0
38	293 14	8.4	5.4	26.3	4.3	39	656	660	. .	. .	. .	50.5	66 42 50.5	. .	+ 2 7.5	117 51 19.2	— 0.5
39	299 50	9 28.8	26.5	16.4	25.9	35	. .	136	. .	116	. .	50.5	60 5 31.7	. .	+ 1 35.7	111 13 28.6	+ 0.7
40	295 36	6.8	3.4	22.5	1.1	37	420	380	. .	. .	. .	50.5	64 20 13.1	. .	+ 1 54.4	115 28 28.7	+ 0.4
41	298 48	2.8	29.6	19.0	29.3	36	416	. .	. .	. .	354	50.5	61 7 54.2	. .	+ 1 39.8	112 15 55.2	
42	298 48	2.8	29.6	19.0	29.3	34	. .	932	. .	992	. .	50.5	61 7 32.4	. .	+ 1 39.8	112 15 33.4	
43	323 54	0.2	27.5	17.3	25.1	33	. .	816	. .	800	. .	50.5	36 1 12.2	618	+ 40.2	87 8 13.6	+ 0.3
44	281 6	12.5	10.6	29.2	7.1	39	. .	. .	. .	762	766	50.5	78 50 55.6	. .	+ 4 32.0	130 1 48.8	0.0
45																	
46	329 34	7.9	4.9	25.5	2.5	32	. .	864	. .	868	. .	50.5	30 21 5.5	. .	+ 32.4	81 27 59.1	+ 0.4
47	327 8	15.0	11.9	2.1	9.9	34	590	566	. .	. .	. .	50.5	32 47 38.8	. .	+ 35.7	83 54 35.7	+ 1.0
48	49 56	2.1	1.5	23.4	29.7	33	. .	. .	925	875	875	50.5	309 59 17.8	628	— 1 5.9	1 4 33.1	— 0.9
49	308 6	5.7	3.1	22.5	0.5	31	. .	712	. .	710	. .	50.5	51 48 45.4	. .	+ 1 10.3	102 56 16.9	— 0.2

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
32	. .	. .	76.0
43	. .	. .	75.2
48	20.942	80.0	74.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
16	— 0.8	+ 10.2	. .	+ 9.4
17	— 0.9	— 10.2	. .	— 11.1
41	— 0.9	— 10.9	. .	— 11.8
42	— 0.9	+ 10.9	. .	+ 10.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
July 31	1	π Capricorni. . .	Ha.	58.4	1.2	2.8	9.2	11.4	13.6	20.0	21.7	24.4	20 11.41	— 1.07	— 8.35	— 8.38	20 20 1.96	0.00
	2	ε Delphini . . .	Ha.	. .	12.8	14.9	16.9	19.0	21.2	25.3	26.9	29.6	27 16.97	— 0.61	— 8.35	— 8.38	20 27 7.98	+ 0.02
	3	μ Aquarii . . .	Ha.	44.0	46.7	48.4	54.6	56.6	58.6	5.0	6.4	8.9	45 56.58	— 0.91	— 8.45	— 8.38	20 45 47.29	+ 0.14
Aug. 2	4	α Cephei . . .	Ha.	16.5	21.5	25.0	33.6	38.3	42.3	47.0	51.2	. .	15 42.44	+ 0.81	. .	— 9.05	21 15 34.20	— 0.05
	5	1 Draconis, S. P. .	Ha.	. .	. .	16.6	2.0	46.9	32.8	17.7	. .	. .	18 47.20	— 5.07	. .	— 9.05	9 18 33.08	— 0.21
	6	β Aquarii. . . .	Ha.	48.8	51.2	52.7	59.0	1.0	3.0	9.3	10.8	13.3	25 1.01	— 0.66	— 8.92	— 9.05	21 25 51.30	— 0.10
	7	ξ Aquarii. . . .	Ha.	55.9	58.4	0.0	6.2	8.2	10.3	16.4	18.0	20.6	31 8.22	— 0.69	— 9.08	— 9.05	21 31 58.48	+ 0.05
	8	ε Pegasi . . .	Ha.	53.3	55.8	57.3	1.5	5.7	9.8	13.9	15.5	18.0	37 5.64	— 0.43	— 9.11	— 9.06	21 37 56.15	+ 0.06
	9	11 Cephei . . .	Ha.	. .	. .	0.9	. .	13.9	20.0	26.4	38.7	. .	40 13.81	+ 1.50	. .	— 9.06	21 40 6.25	+ 0.32
	10	μ Capricorni. . .	Ha.	18.6	21.1	22.7	27.0	31.2	35.3	39.5	41.1	43.8	46 31.14	— 0.78	— 9.09	— 9.06	21 46 21.30	+ 0.06
	11	ζ Pegasi . . .	Ha.	3.6	6.3	8.0	14.2	16.2	18.3	24.5	26.0	28.7	35 16.20	— 0.46	— 9.03	— 9.07	22 35 6.67	+ 0.02
	12	λ Aquarii . . .	Ha.	55.6	58.3	59.8	6.0	8.0	10.1	16.3	17.8	20.4	46 8.03	— 0.67	— 9.13	— 9.07	22 46 58.29	+ 0.14
	13	δ Ursæ Minoris, S.P.	E.	. .	. .	20.0	46.0	12.5	36.5	2.0	. .	. .	14 11.40	—10.04	. .	— 9.41	18 13 51.95	+ 2.46
	14	γ Geminorum . .	E.	15.7	18.4	20.0	26.4	28.4	30.6	37.0	38.7	41.3	30 28.50	— 0.33	— 9.29	— 9.41	6 30 18.76	— 0.15
	15	α Canis Majoris. .	E.	27.0	29.9	31.5	37.9	40.1	42.2	48.5	50.2	52.8	39 40.01	— 0.78	— 9.41	— 9.41	6 39 29.82	— 0.08
	16	α^2 Geminorum .	E.	20.5	23.5	25.4	32.5	34.8	37.3	44.5	46.5	49.4	26 34.93	— 0.10	— 9.36	— 9.42	7 26 25.41	+ 0.18
	17	α Canis Minoris .	E.	33.2	35.8	37.4	43.4	45.5	47.5	53.7	55.3	57.8	32 45.51	— 0.48	— 9.42	— 9.42	7 32 35.61	— 0.16
	18	β Geminorum . .	E.	24.0	27.0	28.7	35.7	38.0	40.4	47.3	49.0	51.9	37 38.00	— 0.16	— 9.32	— 9.42	7 37 28.42	— 0.13
3	19	Sun I, N. . . .	E.	2.6	5.4	7.0	13.3	15.5	17.7	24.0	25.6	28.4	55 15.50	— 0.32	. .	— 9.43	8 55 5.75	. .
	20	Sun II, S. . . .	E.	15.3	18.0	19.6	26.1	28.2	30.4	36.8	38.5	41.4	57 28.26	— 0.32	. .	— 9.43	8 57 18.51	. .
	21	α Leonis . . .	E.	30.0	32.6	34.3	40.5	42.6	44.7	51.0	52.6	55.2	1 42.61	— 0.38	— 9.29	— 9.43	10 1 32.80	— 0.18
	22	γ^1 Leonis . . .	E.	50.9	53.6	55.4	2.0	4.2	6.4	12.9	14.9	17.3	13 4.18	— 0.27	— 9.37	— 9.43	10 13 54.48	— 0.06
	23	Mercury I, N. .	E.	47.0	49.5	51.0	57.3	59.3	1.5	7.7	9.2	11.9	39 59.38	— 0.46	. .	— 9.44	10 39 49.48	+ 0.26
	24	α^1 Herculis . . .	F.	47.5	50.2	51.7	58.0	0.1	2.3	8.5	10.2	12.9	9 0.16	— 0.30	— 9.50	— 9.47	17 8 9.39	+ 0.05
	25	44 Ophiuchi . . .	F.	32.0	34.7	41.0	43.3	45.5	47.8	50.1	56.5	59.2	18 45.57	— 0.86	— 9.42	— 9.47	17 18 35.24	— 0.02
	26	α Ophiuchi . . .	F.	58.7	1.2	2.8	9.0	11.1	13.2	19.6	21.0	23.8	29 11.16	— 0.32	— 9.49	— 9.47	17 29 1.37	+ 0.05
	27	μ Herculis . . .	E.	24.5	27.4	29.1	36.0	. .	40.6	47.6	49.3	52.4	41 38.36	— 0.11	— 9.51	— 9.48	17 41 28.77	+ 0.03
	28	δ Ursæ Minoris. .	E.	. .	. .	42.0	16.5	51.0	25.5	0.0	. .	. .	13 51.00	+10.16	. .	— 9.48	18 13 51.68	+ 2.25
	29	λ Sagittarii . . .	E.	3.4	6.2	7.9	14.7	17.0	19.3	26.0	27.6	30.5	20 16.96	— 0.88	. .	— 9.48	18 20 6.60	— 2.31
	30	Anonymous . .	E.	. .	. .	. .	. .	. .	. .	4.0	5.7	8.8	22 54.19	— 1.04	. .	— 9.48	18 22 43.67	— 2.49
	31	1 Aquilæ. . . .	E.	14.3	16.9	18.5	24.8	26.8	28.9	35.0	36.6	39.3	28 26.79	— 0.61	— 9.59	— 9.48	18 28 16.70	+ 0.18
	32	α Lyræ	E.	32.0	35.4	37.4	45.1	47.7	50.4	58.3	0.2	3.5	32 47.78	+ 0.08	— 9.55	— 9.48	18 32 38.38	+ 0.09
	33	B. A. C. 6365 .	E.	47.8	51.0	53.0	0.8	3.5	6.0	14.0	15.9	19.0	36 3.44	+ 0.08	. .	— 9.49	18 35 54.03	— 2.02
	34	29 Sagittarii . . .	E.	3.9	6.5	8.4	14.8	16.9	19.1	25.9	27.4	30.1	42 17.00	— 0.80	. .	— 9.49	18 42 6.71	— 2.30
	35	β Lyræ	E.	18.2	21.3	23.2	30.5	32.9	35.4	42.5	44.5	47.5	45 32.89	— 0.01	— 9.60	— 9.49	18 45 23.39	+ 0.14
	36	o Sagittarii . . .	E.	0.2	2.9	4.5	11.3	13.5	15.6	22.3	23.9	26.6	57 13.42	— 0.82	. .	— 9.49	18 57 3.11	— 2.37
	37	τ Sagittarii . . .	E.	56.2	59.0	0.6	7.6	9.9	12.3	19.3	21.1	23.7	59 9.97	— 0.93	. .	— 9.49	18 58 59.55	— 2.50
	38	π Sagittarii . . .	E.	8.6	11.4	13.3	19.6	21.8	24.0	30.7	32.4	35.2	2 21.89	— 0.81	. .	— 9.59	19 2 11.49	— 2.37
	39	Saturn I, S. . .	E.	6.2	8.9	10.6	. .	. .	. .	28.3	29.8	32.6	10 19.40	— 0.83	. .	— 9.59	19 10 8.98	. .
	40	Saturn II, N. . .	E.	. .	. .	16.4	18.5	20.8	23.0	25.0	. .	. .	10 20.74	— 0.83	. .	— 9.59	19 10 10.32	. .
	41	B. A. C. 6628 . .	E.	30.2	33.0	35.0	41.8	44.3	46.5	53.6	55.4	58.9	16 44.30	— 0.93	. .	— 9.59	19 16 33.78	— 2.55
	42	δ Aquilæ. . . .	E.	2.5	5.1	6.7	12.7	14.7	16.8	23.0	24.6	27.0	19 14.79	— 0.46	— 9.54	— 9.59	19 19 4.74	0.00
	43	κ Aquilæ. . . .	E.	0.2	3.0	4.5	10.6	12.6	14.7	20.8	22.5	25.0	30 12.66	— 0.60	— 9.56	— 9.60	19 30 2.46	0.00
6	44	δ Ursæ Minoris .	Ha.	. .	. .	37.5	13.0	46.0	21.5	55.0	. .	. .	13 46.60	+ 9.97	. .	— 9.40	18 13 47.17	— 1.39
	45	1 Aquilæ. . . .	Ha.	14.3	16.9	18.4	24.6	26.7	28.7	34.9	36.5	39.0	28 26.67	— 0.67	— 9.42	— 9.40	18 28 16.60	+ 0.09
	46	α Lyræ	Ha.	31.9	35.1	37.1	44.9	47.6	50.3	58.0	0.0	3.2	32 47.57	+ 0.10	— 9.39	— 9.40	18 32 38.27	+ 0.01
	47	51 Cephei, S. P. .	Ha.	. .	. .	20.5	38.0	56.0	14.0	31.0	. .	. .	39 55.90	—17.70	. .	— 9.40	6 39 28.80	— 2.02
	48	β Lyræ	Ha.	18.0	21.1	22.9	30.2	32.7	35.1	42.5	44.3	47.4	45 32.69	— 0.01	— 9.42	— 9.40	18 45 23.28	+ 0.05
	49	σ Sagittarii . . .	Ha.	18.7	21.6	23.3	30.2	32.4	34.7	41.6	43.3	46.0	47 32.42	— 0.99	— 9.33	— 9.40	18 47 22.03	— 0.06

14. Telescope micrometer reading increased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	302 26	11.4	9.0	27.9	4.1	35	. .	630	. .	585	. .	50.5	57 29 50.3	. .	+ 1 26.7	98 37 38.2	— 1.3
2	331 54	9.4	7.9	27.3	1.0	31	. .	. .	. .	795	780	50.5	28 0 50.1	627	+ 29.5	79 7 40.8	— 1.6
3	311 36	9.5	7.2	27.5	4.2	37	. .	035	. .	050	. .	50.5	48 20 11.4	. .	+ 1 2.2	99 27 34.8	— 0.4
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13	54 24	7.5	6.7	29.0	3.7	34	072	. .	. .	. .	110	51.3	305 31 26.4	628	— 1 17.0	356 36 30.6	— 2.2
14	337 32	7.7	6.9	26.6	2.7	30	610	630	. .	650	655	51.3	22 22 48.3	. .	+ 22.7	73 29 32.2	0 0
15	304 32	9.1	7.3	26.8	4.6	39	. .	074	. .	102	. .	51.3	55 24 43.4	. .	+ 1 19.6	106 32 24.2	+ 0.2
16	353 12	10.3	9.2	0.0	5.8	34	. .	150	. .	160	. .	51.3	6 43 29.8	. .	+ 6.5	57 49 57.5	0.0
17	326 36	13.0	12.3	1.8	8.9	35	. .	560	. .	590	. .	51.3	33 19 54.1	. .	+ 36.0	84 26 51.3	— 0.1
18	349 22	6.7	4.5	25.3	0.2	34	215	235	. .	253	240	51.3	10 33 26.4	605	+ 10.2	61 39 57.8	+ 0.6
19	338 38	6.5	5.2	23.4	2.0	37	370	442	. .	. .	. .	51.3	21 18 15.6	. .	+ 21.2	72 24 58.0	
20	338 6	5.8	3.1	22.4	29.1	36	. .	. .	. .	041	015	51.3	21 49 52.0	580	+ 22.3	72 56 35.5	
21	333 38	10.5	9.3	28.5	5.7	34	. .	635	. .	685	. .	51.3	26 17 37.1	560	+ 26.8	77 24 25.1	0.0
22	341 32	8.5	7.4	26.1	2.3	36	. .	480	. .	550	. .	51.3	18 24 3.3	. .	+ 18.0	69 30 42.5	+ 4.6
23	327 48	7.8	6.7	26.5	3.1	38	205	185	. .	295	275	51.3	32 8 29.6	. .	+ 34.1	83 15 24.9	
24	335 34	2.6	0.6	21.3	23.5	32	. .	284	. .	290	. .	51.2	24 20 51.6	648	+ 25.1	75 27 37.9	+ 0.6
25	297 0	2.2	0.5	19.8	26.3	33	. .	694	. .	698	. .	51.2	62 55 13.2	. .	+ 1 48.3	114 3 22.7	+ 1.4
26	333 42	1.8	0.4	19.8	25.8	35	. .	996	. .	000	. .	51.2	26 13 48.5	652	+ 27.4	77 20 37.1	+ 0.7
27	348 50	12.0	11.0	1.5	3.8	34	. .	145	. .	165	. .	51.2	11 5 30.4	. .	+ 10.9	62 12 2.5	+ 0.2
28	47 38	15.3	16.7	6.7	9.7	36	180	. .	. .	. .	185	51.2	312 18 6.6	. .	— 1 1.3	3 23 26.5	— 0.6
29	295 36	14.5	13.0	2.0	8.3	40	. .	410	. .	400	. .	51.2	64 21 8.5	. .	+ 1 55.8	115 29 25.5	— 2.6
30	288 0	15.6	13.9	2.5	8.5	32	. .	665	. .	605	. .	51.2	71 55 9.7	. .	+ 2 49.2	123 4 20.1	— 4.1
31	312 44	14.3	13.5	3.8	8.5	37	. .	865	. .	895	. .	51.2	47 12 30.4	. .	+ 1 0.3	98 19 51.9	+ 1.3
32	359 42	18.0	18.0	7.3	11.0	33	. .	890	. .	850	. .	51.2	0 13 32.6	. .	+ 0.2	51 19 54.0	— 0.3
33	359 18	16.5	15.0	1.5	8.5	37	. .	840	. .	860	. .	51.2	0 38 30.6	. .	+ 0.6	51 44 52.4	+ 8.2
34	300 36	16.8	14.5	3.3	8.8	36	. .	540	. .	570	. .	51.2	59 20 10.8	668	+ 1 34.0	110 28 6.0	— 0.4
35	354 16	15.8	15.0	5.7	8.6	37	. .	775	. .	755	. .	51.2	5 40 30.1	. .	+ 5.6	56 46 56.9	+ 0.4
36	299 8	13.9	12.7	2.1	7.3	34	. .	175	. .	165	. .	51.2	60 47 32.3	. .	+ 1 39.8	111 55 33.3	+ 0.2
37	293 14	16.4	13.3	2.3	8.8	38	. .	950	. .	960	. .	51.2	66 42 47.0	. .	+ 2 9.3	117 51 17.5	— 0.6
38	299 50	10.5	7.8	27.5	4.0	34	. .	185	. .	235	. .	51.2	60 5 28.8	. .	+ 1 37.0	111 13 27.0	+ 0.6
39	298 46	15.3	14.5	3.5	9.1	34	235	. .	. .	. .	175	51.2	61 9 34.2	. .	+ 1 41.3	112 17 36.7	
40	298 46	15.3	14.5	3.5	9.1	32	. .	790	. .	720	. .	51.2	61 9 12.1	675	+ 1 41.3	112 17 14.6	
41	292 58	16.8	14.0	3.2	10.0	36	. .	250	. .	220	. .	51.2	66 58 6.0	. .	+ 2 10.9	118 6 38.1	+ 0.4
42	323 54	12.4	11.3	0.2	4.7	32	. .	880	. .	900	. .	51.2	36 1 10.9	. .	+ 40.7	87 8 12.8	— 0.1
43	313 44	15.0	12.8	2.7	7.5	32	. .	770	. .	710	. .	51.2	46 11 10.9	. .	+ 58.4	97 18 30.5	+ 0.2
44																	
45																	
46																	
47																	
48																	
49																	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
2	. .	. .	74.5
20	. .	. .	83.8
24	. .	. .	73.8
26	. .	. .	72.5
40	. .	. .	69.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
19	— 3.2	+ 15 48.7	. .	+ 15 45.5
20	— 3.3	— 15 48.7	. .	— 15 52.0
23	— 5.3	+ 3.8	. .	— 1.5
39	— 0.9	— 11.0	. .	— 11.9
40	— 0.8	+ 11.0	. .	+ 10.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Aug. 6	1	ζ Aquilæ. . . .	Ha.	30.9	33.4	35.0	41.2	43.4	45.6	51.9	53.4	55.9	59 43.41	— 0.34	— 9.43	— 9.40	18 59 33.67	+ 0.11
	2	α Sagittarii . . .	Ha.	8.3	11.0	12.6	19.1	21.3	23.4	29.9	31.6	34.2	10 21.27	— 0.86	— 9.39	— 9.40	19 10 11.01	+ 0.01
	3	δ Aquilæ. . . .	Ha.	2.5	5.0	6.6	12.6	14.7	16.8	23.0	24.5	27.0	19 14.74	— 0.50	— 9.45	— 9.40	19 19 4.84	+ 0.10
	4	α Canis Majoris. .	E.	27.8	30.3	31.9	38.3	40.4	42.5	49.0	50.5	53.3	39 40.44	— 1.02	— 9.52	— 9.58	6 39 29.84	+ 0.14
	5	δ Geminorum . .	E.	25.1	27.8	29.5	36.3	38.4	40.6	47.6	48.9	51.5	12 38.41	— 0.38	— 9.58	— 9.58	7 12 28.45	— 0.06
	6	α^2 Geminorum . .	E.	20.8	24.0	25.5	33.0	35.4	37.9	45.0	47.0	49.9	26 35.39	— 0.19	— 9.65	— 9.58	7 26 25.62	+ 0.31
	7	α Canis Minoris .	E.	33.5	36.2	37.7	43.8	45.9	47.9	54.0	55.6	58.3	32 45.88	— 0.65	— 9.55	— 9.58	7 32 35.65	— 0.19
	8	β Geminorum . .	E.	24.5	27.3	29.2	36.1	38.5	40.7	47.9	49.4	52.4	37 38.44	— 0.27	— 9.57	— 9.58	7 37 28.59	— 0.04
7	9	Sun I, N. . . .	E.	24.6	27.3	28.8	35.2	37.3	39.2	45.9	47.4	50.2	10 37.32	— 0.47	. .	— 9.58	9 10 27.27	. .
	10	Sun II	E.	36.7	39.4	41.0	47.3	49.4	51.5	58.0	59.4	2.2	12 49.43	— 0.47	. .	— 9.58	9 12 39.38	. .
	11	Venus I, N. . .	E.	56.2	58.9	0.5	. .	. .	. .	17.5	19.0	21.6	38 8.95	— 0.48	. .	— 9.58	9 37 58.89	. .
	12	Venus II, S. . .	E.	. .	. .	5.4	7.6	9.8	11.9	14.0	. .	. .	38 9.74	— 0.48	. .	— 9.58	9 37 59.68	. .
	13	α Leonis	E.	30.5	33.1	34.6	40.9	43.0	45.1	51.5	53.0	55.6	1 43.03	— 0.54	— 9.54	— 9.58	10 1 32.91	— 0.08
	14	γ^1 Leonis	E.	51.4	54.1	55.7	2.4	4.5	6.7	13.2	14.8	17.6	13 4.49	— 0.40	— 9.56	— 9.58	10 12 54.51	— 0.04
	15	Mercury I, N. . .	E.	50.7	53.5	55.0	1.0	3.1	5.2	11.3	13.0	15.5	51 3.14	— 0.66	. .	— 9.58	10 50 52.90	+ 0.28
	16	δ Leonis	E.	14.6	17.3	19.0	25.5	27.7	30.0	36.5	38.3	40.8	7 27.74	— 0.39	— 9.55	— 9.58	11 7 17.77	— 0.09
	17	Moon I	E.	35.5	38.3	39.7	46.0	48.1	50.2	56.3	58.0	0.6	42 48.08	— 0.63	. .	— 9.58	11 42 37.87	+62.39
	18	α Ophiuchi . . .	E.	59.1	1.6	3.2	9.5	11.5	13.6	20.0	21.6	24.3	29 11.60	— 0.55	— 9.74	— 9.58	17 29 1.47	+ 0.19
	19	μ Herculis . . .	E.	24.8	27.6	29.4	36.3	38.5	40.8	47.7	49.6	52.5	41 38.58	— 0.30	— 9.59	— 9.58	17 41 28.70	+ 0.01
	20	δ Ursæ Minoris. .	E.	. .	. .	38.0	11.0	46.0	20.5	55.0	. .	. .	13 46.10	. .	. .	. .	. . . .	. .
	21	λ Sagittarii . . .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	22	B. A. C. 6287 . .	E.	. .	. .	48.9	51.0	53.1	55.4	57.5	. .	. .	22 53.18	— 1.05	. .	— 9.58	18 22 42.55	— 2.19
	23	ι Aquilæ. . . .	E.	14.5	17.4	18.8	25.0	27.0	29.2	35.4	37.0	39.4	28 27.08	— 0.87	— 9.63	— 9.58	18 28 16.63	+ 0.08
	24	O, Arg. S. 18525 .	E.	54.4	57.3	59.0	5.7	8.1	10.4	17.2	18.8	21.7	33 8.07	— 1.18	. .	— 9.58	18 32 57.31	— 2.33
	25	φ Sagittarii . . .	E.	38.8	41.8	43.5	50.5	52.6	55.0	2.0	3.6	6.5	37 52.70	— 1.22	. .	— 9.58	18 37 41.90	— 2.39
	26	29 Sagittarii , . .	E.	4.3	7.1	8.7	15.3	17.3	19.4	26.2	27.7	30.5	42 17.39	— 1.09	. .	— 9.58	18 42 6.72	— 2.28
	27	33 Sagittarii . . .	E.	21.0	23.7	25.5	31.9	34.1	36.4	42.8	44.6	47.4	46 34.16	— 1.11	. .	— 9.58	18 46 23.47	— 2.32
	28	τ Sagittarii . . .	E.	56.4	59.3	1.1	7.8	10.2	12.5	19.5	21.4	24.3	59 10.28	— 1.23	. .	— 9.58	18 59 59.47	— 2.49
	29	Weisse 1542 . .	E.	49.7	52.4	53.9	59.9	2.0	4.1	10.0	11.7	14.3	1 2.00	— 0.76	. .	— 9.58	19 0 51.66	— 2.12
	30	ψ Sagittarii . . .	E.	41.0	44.0	45.7	52.4	54.6	56.9	3.9	5.6	8.5	7 54.73	— 1.18	. .	— 9.58	19 7 43.97	— 2.46
	31	B. A. C. 6607 . .	E.	57.6	0.5	2.3	8.8	11.0	13.2	19.9	21.6	24.3	13 11.02	— 1.13	. .	— 9.58	19 13 0.31	— 2.43
9	32	δ Aquilæ. . . .	E.	2.7	5.3	6.8	13.0	15.0	17.0	23.2	24.8	27.4	19 15.02	— 0.70	— 9.53	— 9.58	19 19 4.74	0.00
	33	γ Aquilæ. . . .	Ha.	. .	18.7	20.8	22.8	24.8	26.8	31.0	32.7	35.2	40 22.77	— 0.50	— 9.68	— 9.61	19 40 12.66	+ 0.10
	34	α Aquilæ. . . .	Ha.	32.1	34.9	36.4	42.5	44.5	46.6	52.8	54.3	57.0	44 44.57	— 0.54	— 9.59	— 9.61	19 44 34.42	+ 0.02
	35	β Aquilæ. . . .	Ha.	1.7	4.1	5.6	11.8	13.9	15.9	22.1	23.8	26.2	48 13.90	— 0.58	— 9.62	— 9.61	19 48 3.71	+ 0.04
	36	λ Ursæ Minoris. .	Ha.	. .	. .	. .	38.0	26.5	14.0	2.0	. .	. .	52 25.62	. .	. .	. .	. . . .	. .
	37	α^2 Capricorni. . .	Ha.	57.5	0.0	1.6	7.9	9.9	12.0	18.4	19.9	22.4	11 9.96	— 0.90	— 9.61	— 9.61	20 10 59.45	+ 0.04
	38	π Capricorni. . .	Ha.	59.7	2.4	4.0	10.5	12.7	14.8	21.2	22.8	25.4	20 12.61	— 1.01	— 9.56	— 9.61	20 20 1.99	— 0.02
	39	ε Delphini . . .	Ha.	5.7	8.4	9.8	16.1	18.2	20.2	26.5	28.0	30.6	27 18.17	— 0.50	— 9.62	— 9.61	20 27 8.06	+ 0.06
	40	ν Cygni	Ha.	19.7	23.2	25.1	33.3	35.9	38.6	46.7	48.7	52.0	52 35.91	+ 0.13	— 9.62	— 9.61	20 52 26.43	+ 0.07
11	41	Polaris, S. P. . .	E.	33.0	43.0	43.0	. .	. .	. .	. .	. .	. .	13 1.00	. .	. .	. .	. . . .	. .
	42	ζ Virginis . . .	E.	. .	. .	. .	. .	. .	. .	29.6	31.2	33.8	28 21.49	— 0.76	. .	—10.04	13 28 10.69	— 0.07
	43	η Bootis	E.	33.5	36.0	37.8	44.4	46.4	48.5	55.2	56.8	59.4	48 46.44	— 0.46	—10.07	—10.04	13 48 35.94	— 0.02
	44	α Bootis	E.	47.6	50.3	52.0	58.3	0.5	2.6	9.1	10.9	13.4	10 0.52	— 0.45	—10.09	—10.04	14 9 50.03	+ 0.05
13	45	δ Ursæ Minoris, S, P.	E.	. .	. .	18.0	43.0	8.5	34.0	1.0	. .	. .	14 8.90	. .	. .	. .	. . . .	. .
	46	γ Geminorum . .	E.	17.2	19.8	21.4	27.8	29.9	32.2	38.5	40.2	42.8	30 29.98	— 0.42	—10.40	—10.51	6 30 19.05	— 0.14
	47	α Canis Majoris. .	E.	28.6	31.4	33.1	39.4	41.5	43.5	50.0	51.5	54.3	39 41.58	— 0.96	—10.56	—10.51	6 39 30.11	— 0.03
	48	δ Geminorum . .	E.	26.0	28.9	30.6	37.0	39.3	41.7	48.2	49.8	52.8	12 39.37	— 0.32	—10.44	—10.52	7 12 28.53	— 0.14
	49	α^2 Geminorum . .	E.	21.9	24.9	26.8	34.0	36.4	38.9	46.1	48.0	50.8	26 36.42	— 0.14	—10.57	—10.52	7 26 25.76	+ 0.29

21. Bisections at sets B and D.
41. Bisections at wires B_1 and B_2.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1																	
2																	
3																	
4	304 32	10.0	7.8	29.1	4.1	38	. .	840	. .	880	. .	50.5	55 24 40.0	648	+ 1 20.1	106 32 21.3	— 1.9
5	343 16	13.5	11.8	1.2	6.7	37	. .	395	. .	345	. .	50.5	16 40 20.4	. .	+ 16.5	67 46 58.1	— 1.1
6	353 12	8.5	7.8	27.5	2.5	34	. .	295	. .	335	. .	50.5	6 43 29.3	628	+ 6.5	57 49 57.0	— 0.8
7	326 36	15.5	13.9	3.3	9.3	35	. .	440	. .	380	. .	50.5	33 19 52.3	. .	+ 36.3	84 26 49.8	— 1.3
8	349 22	10.2	8.4	28.5	2.8	33	. .	980	. .	000	. .	50.5	10 33 25.1	625	+ 10.3	61 39 56.6	— 0.7
9	337 32	15.5	14.6	4.8	10.1	36	. .	. .	185	195	. .	50.5	22 24 5.0	. .	+ 22.5	73 30 48.7	
10																	
11	336 38	10.2	9.0	0.0	4.0	35	510	. .	. .	. .	550	50.5	23 17 49.7	548	+ 23.4	74 24 34.3	
12	336 38	10.2	9.0	0.0	4.0	34	. .	640	. .	750	. .	50.5	23 17 36.7	. .	+ 23.4	74 24 21.3	
13	333 38	13.0	10.0	2.4	7.0	34	. .	620	. .	650	. .	50.5	26 17 38.1	. .	+ 26.8	77 24 26.1	+ 1.0
14	341 32	9.1	8.3	27.8	4.2	36	. .	275	. .	235	. .	50.5	18 23 59.8	530	+ 18.1	69 30 39.1	+ 1.0
15	325 52	10.5	9.1	29.0	3.0	40	. .	730	. .	800	. .	50.5	34 5 9.5	. .	+ 36.6	85 12 7.3	
16	342 16	13.0	12.4	0.3	7.0	35	260	270	. .	280	300	50.5	17 39 48.2	535	+ 17.2	68 46 26.6	+ 0.1
17																	
18	333 42	14.2	12.2	3.1	8.4	35	. .	230	. .	180	. .	51.7	26 13 49.4	635	+ 27.4	77 20 38.0	+ 2.0
19	348 50	8.7	7.0	28.5	3.0	34	. .	535	. .	535	. .	51.7	11 5 34.0	. .	+ 10.9	62 12 6.1	+ 4.5
20	47 38	14.2	14.0	4.3	10.0	36	240	. .	225	. .	230	51.7	312 18 6.3	. .	— 1 1.2	3 23 26.3	— 0.1
21	295 36	20.7	18.7	8.5	14.5	40	. .	010	. .	005	. .	51.7	64 21 9.2	640	+ 1 55.6	115 29 26.0	— 2.8
22	302 16	17.2	14.2	4.0	10.4	38	. .	360	. .	390	. .	51.7	57 40 39.9	. .	+ 1 28.0	108 48 29.1	— 1.1
23	312 44	12.3	9.8	0.0	4.2	38	. .	050	. .	080	. .	51.7	47 12 30.3	. .	+ 1 0.3	98 19 51.8	+ 1.4
24	295 56	17.1	14.0	4.2	11.0	33	. .	240	. .	280	. .	51.7	63 59 21.3	. .	+ 1 53.8	115 7 36.3	— 2.0
25	293 58	18.2	15.0	4.5	12.5	38	. .	820	. .	790	. .	51.7	65 58 47.5	. .	+ 2 4.6	117 7 13.3	— 2.1
26	300 36	14.3	12.0	0.4	7.5	36	. .	550	. .	530	. .	51.7	59 20 8.7	. .	+ 1 33.9	110 28 3.8	— 0.4
27	299 34	14.6	11.3	1.5	7.2	39	. .	340	. .	400	. .	51.7	60 22 52.3	. .	+ 1 37.9	111 30 51.4	— 0.4
28	293 14	15.0	12.0	1.3	8.9	39	. .	130	. .	080	. .	51.7	66 42 48.9	. .	+ 2 9.1	117 51 19.2	— 0.9
29	319 44	15.3	14.0	2.2	7.8	36	. .	140	. .	120	. .	51.7	40 12 3.8	. .	+ 47.2	91 19 12.2	+ 4.0
30	295 36	17.8	15.0	4.0	10.8	36	. .	550	. .	510	. .	51.7	64 20 11.9	. .	+ 1 55.9	115 28 29.0	+ 0.1
31	298 26	16.1	12.8	2.4	11.0	36	. .	630	. .	640	. .	51.7	61 30 12.2	660	+ 1 42.7	112 38 16.1	+ 1.1
32	323 54	11.6	8.0	29.0	5.0	32	. .	970	. .	020	. .	51.7	36 1 11.8	. .	+ 40.7	87 8 13.7	+ 1.2
33																	
34																	
35																	
36																	
37																	
38																	
39																	
40																	
41	52 24	4.0	3.8	21.8	0.5	37	680	655	. .	. .	. .	50.5	307 32 13.8	478	— 1 9.1	358 37 25.9	— 0.9
42	321 6	12.8	10.1	1.0	8.0	33	. .	. .	. .	695	665	50.5	38 49 23.2	. .	+ 42.8	89 56 27.2	+ 1.0
43	340 4	10.7	7.0	28.0	3.2	31	. .	740	. .	720	. .	50.5	19 50 50.2	. .	+ 19.2	70 57 30.6	+ 1.0
44	340 54	6.3	4.4	26.1	0.1	37	. .	550	. .	570	. .	50.5	19 2 16.7	. .	+ 18.4	70 8 56.3	+ 0.8
45																	
46	337 32	13.1	12.8	0.0	6.8	31	. .	370	. .	390	. .	50.5	22 22 48.2	570	+ 22.4	73 29 31.8	0.0
47	304 32	16.8	14.0	1.8	9.0	38	. .	600	. .	620	. .	50.5	55 24 41.3	. .	+ 1 18.5	106 32 21.0	— 1.0
48	343 16	17.3	16.5	2.5	8.5	37	. .	290	. .	270	. .	50.5	16 40 21.8	550	+ 16.2	67 46 59.2	— 0.1
49	353 12	15.4	13.0	2.3	9.0	33	. .	955	. .	985	. .	50.5	6 43 29.8	. .	+ 6.4	57 49 57.4	— 0.9

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
4	. .	. .	80.0
11	. .	. .	90.5
14	. .	. .	91.0
16	. .	. .	92.0
18	. .	. .	77.0
21	. .	. .	76.0
31	. .	. .	74.0
41	. .	. .	97.5
46	. .	. .	86.0
48	. .	. .	89.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
9	— 3.3	+ 15 48.9	. .	+ 15 45.6
11	— 2.0	— 6.5	. .	— 8.5
12	— 2.0	+ 6.5	. .	+ 4.5
15	— 6.1	+ 4.1	. .	— 2.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Aug. 13	1	α Canis Minoris. .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	2	β Geminorum . .	E.	25.6	30.4	34.9	37.1	39.5	41.8	44.3	48.8	43.5	37 39.54	— 0.21	—10.58	—10.52	7 37 28.81	+ 0.03
14	3	Sun I, S. . . .	E.	55.2	57.9	59.5	5.7	7.9	10.1	16.4	18.1	20.6	37 7.93	— 0.46	. .	—10.53	9 36 56.94	. .
	4	Sun II, N. . . .	E.	. .	. .	. .	. .	. .	. .	27.2	28.8	41.5	39 18.67	— 0.45	. .	—10.53	9 39 7.69	. .
	5	Venus I, S. . .	E.	36.1	38.6	40.4	. .	. .	. .	56.9	58.6	1.1	11 48.62	— 0.48	. .	—10.54	10 11 37.60	+ 0.35
	6	Venus, C. N. . .	E.	. .	. .	44.8	47.0	49.0	51.1	53.3	. .	. .	11 49.04	— 0.48	. .	—10.54	10 11 38.02	+ 0.02
	7	β Leonis	E.	. .	. .	38.4	40.6	42.7	44.8	47.0	. .	. .	42 42.70	— 0.43	—10.55	—10.55	11 42 31.72	— 0.02
17	8	γ^2 Sagittarii . . .	Ha.	35.4	38.2	40.1	47.2	49.4	51.8	58.9	0.7	3.7	57 49.49	— 1.33	—10.81	—10.95	17 57 37.21	— 0.13
	9	μ^1 Sagittarii . . .	Ha.	7.6	10.3	12.0	18.5	20.6	22.9	29.5	31.0	33.9	6 20.70	— 1.13	—11.00	—10.95	18 6 8.62	+ 0.05
	10	δ Ursæ Minoris. .	Ha.	. .	. .	33.5	7.5	41.0	17.5	51.0	. .	. .	13 42.10	. .	. .	. .	. . . .	. .
	11	λ Sagittarii . . .	Ha.	5.0	7.9	9.6	16.3	18.6	20.9	27.6	29.4	32.1	20 18.60	— 1.22	. .	—10.96	18 20 6.42	— 2.21
	12	Anonymous . .	Ha.	41.0	44.0	45.9	53.2	55.7	58.1	5.4	7.2	10.3	22 55.64	— 1.41	. .	—10.96	18 22 43.27	— 2.38
	13	O. Arg. S. 18521 .	Ha.	34.9	37.7	39.4	46.5	48.4	50.7	57.5	59.3	2.0	32 48.49	— 1.21	. .	—10.96	18 32 36.32	— 2.24
	14	φ Sagittarii . . .	Ha.	. .	. .	. .	. .	. .	. .	3.3	4.9	7.8	37 54.06	— 1.26	. .	—10.96	18 37 41.84	— 2.32
	15	29 Sagittarii . . .	Ha.	5.5	8.3	10.0	16.5	18.6	20.9	27.4	29.0	31.7	42 18.66	— 1.11	. .	—10.96	18 42 6.59	— 2.22
	16	Weisse 1542 . .	Ha.	51.2	53.6	55.2	1.2	3.3	5.4	11.5	13.0	15.6	1 3.33	— 0.74	. .	—10.96	19 0 51.63	— 2.06
	17	B. A. C. 6607 . .	Ha.	59.0	1.9	3.4	10.0	12.2	14.4	21.0	22.8	25.6	13 12.26	— 1.16	. .	—10.96	19 13 0.14	— 2.40
	18	δ Aquilæ. . . .	Ha.	4.3	6.8	8.2	14.5	16.4	18.4	24.5	26.0	28.6	19 16.41	— 0.66	—11.00	—10.96	19 19 4.79	+ 0.09
	19	κ Aquilæ. . . .	Ha.	1.9	4.5	6.2	12.3	14.3	16.4	22.5	24.0	26.6	30 14.30	— 0.84	—10.98	—10.96	19 30 2.50	+ 0.06
	20	γ Aquilæ. . . .	Ha.	11.7	14.2	15.8	21.9	24.0	26.1	32.4	34.0	36.5	40 24.07	— 0.53	—10.99	—10.96	19 40 12.58	+ 0.06
	21	Anonymous . .	Ha.	19.9	23.1	24.8	32.2	34.9	37.4	44.9	46.8	49.8	37 34.87	— 0.03	. .	—10.97	20 37 23.87	— 2.20
	22	Weisse (2) 1373 .	Ha.	2.8	5.9	7.8	15.2	17.6	20.0	27.6	29.3	32.3	42 17.61	— 0.06	. .	—10.97	20 42 6.58	— 2.22
	23	9 Aquarii. . . .	Ha.	6.8	9.6	11.0	17.3	19.4	21.4	27.8	29.4	32.0	54 19.41	— 0.97	. .	—10.97	20 54 7.47	— 2.46
	24	η Capricorni. . .	Ha.	8.6	11.4	12.9	19.7	21.7	23.8	30.5	32.1	34.9	57 21.73	— 1.10	. .	—10.98	20 57 9.65	— 2.57
	25	34 Vulpeculæ . .	Ha.	17.5	20.2	21.8	28.7	30.7	33.0	39.7	41.3	44.0	15 30.77	— 0.29	. .	—10.98	21 15 19.50	— 2.22
	26	Moon II, S. . .	Ha.	55.0	57.9	59.5	6.2	8.6	10.8	17.5	19.1	22.0	18 8.51	— 1.13	. .	—10.98	21 17 56.40	+74.50
	27	B. A. C. 7528 . .	Ha.	3.9	6.6	8.1	14.7	16.9	19.1	25.6	27.2	29.9	33 16.89	— 0.36	. .	—10.98	21 33 5.55	— 2.23
18	28	α Canis Minoris. .	E.	35.7	38.6	40.0	46.2	48.1	50.1	56.3	58.0	0.4	32 48.16	— 0.72	—11.52	—11.46	7 32 35.98	— 0.10
	29	β Geminorum . .	E.	26.7	29.7	31.4	38.4	40.6	43.0	50.0	51.7	54.5	37 40.67	— 0.34	—11.47	—11.46	7 37 28.87	— 0.02
19	30	Sun I, S. . . .	E.	35.5	38.0	39.6	46.0	48.0	50.1	56.4	58.0	0.6	55 48.02	— 0.62	. .	—11.48	9 55 35.92	. .
	31	Sun II, N. . . .	E.	. .	. .	54.0	56.0	58.1	0.2	2.4	. .	. .	57 58.14	— 0.62	. .	—11.48	9 57 46.04	. .
	32	Venus I, S. . .	E.	8.9	11.4	12.9	19.3	21.4	23.5	29.8	31.4	34.0	35 21.40	— 0.65	. .	—11.49	10 35 9.26	+ 0.35
	33	Venus, N. . . .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	34	Mercury I . . .	E.	. .	. .	. .	. .	. .	2.2	6.3	7.9	10.4	0 58.14	— 0.79	. .	—11.50	11 0 45.85	+ 0.33
	35	δ Leonis	E.	. .	. .	. .	. .	. .	. .	. .	40.2	42.9	7 29.79	— 0.47	—11.52	—11.50	11 7 17.82	— 0.04
	36	β Leonis	E.	31.0	33.6	35.4	41.6	43.7	45.9	52.3	53.9	56.4	42 43.76	— 0.57	—11.48	—11.51	11 42 31.68	— 0.05
	37	Polaris, S. P. . .	E.	. .	. .	0.0	35.5	. .	46.0	20.5	. .	. .	13 10.32	. .	. .	. .	. . . .	. .
	38	α Virginis . . .	E.	27.3	29.9	31.6	37.8	39.8	41.9	48.2	49.7	52.4	18 39.84	— 1.00	—11.45	—11.52	13 18 27.32	— 0.09
21	39	γ^2 Sagittarii . . .	Ha.	35.9	38.8	40.6	47.7	50.1	52.5	59.6	1.3	4.3	57 50.09	— 1.18	—11.61	—11.71	17 57 37.20	— 0.09
	40	μ^1 Sagittarii . . .	Ha.	8.1	10.9	12.6	19.0	21.3	23.5	30.0	31.7	34.5	6 21.29	— 0.98	—11.79	—11.71	18 6 8.60	+ 0.08
	41	δ Ursæ Minoris. .	Ha.	. .	. .	34.0	8.5	43.0	17.0	52.0	. .	. .	13 42.90	. .	. .	. .	. . . .	. .
	42	Anonymous . .	Ha.	41.6	44.6	46.6	53.8	56.2	58.7	6.0	7.8	10.8	22 56.23	— 1.25	. .	—11.72	18 22 43.26	— 2.33
	43	O. Arg. S. 18521 .	Ha.	35.6	38.4	40.3	46.8	49.0	51.3	58.0	59.4	2.6	32 49.04	— 1.06	. .	—11.72	18 32 36.26	— 2.22
	44	Anonymous . .	Ha.	46.0	48.8	50.5	57.2	59.4	1.8	8.5	10.1	12.9	33 59.47	— 1.06	. .	—11.72	18 33 46.69	— 2.22
	45	ϕ Sagittarii . . .	Ha.	40.9	43.8	45.5	52.4	54.8	57.0	3.8	5.6	8.3	37 54.68	— 1.11	. .	—11.72	18 37 41.85	— 2.28
	46	B. A. C. 6393 . .	Ha.	. .	. .	52.9	57.2	1.8	6.2	10.6	. .	. .	40 1.74	+ 1.00	. .	—11.72	18 39 51.02	— 1.99
	47	Weisse 1542 . .	Ha.	51.6	54.3	55.8	1.8	3.9	6.0	12.0	13.7	16.1	1 3.91	— 0.63	. .	—11.72	19 0 51.56	— 2.13
	48	B. A. C. 6607 . .	Ha.	59.6	2.5	4.0	10.6	12.8	15.0	21.8	23.5	26.2	13 12.89	— 1.01	. .	—11.73	19 13 0.15	— 2.35
	49	B. A. C. 6628 . .	Ha.	32.7	35.5	37.3	44.2	46.6	48.9	55.9	57.7	0.9	16 46.63	— 1.13	. .	—11.73	19 16 33.77	— 2.48

26. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	326 36	15.5	13.4	1.9	8.4	35	. .	480	. .	500	. .	50.5	33 19 52.8	. .	+ 35.5	84 26 49.5	− 1.2
2	349 22	12.0	9.8	28.5	5.1	33	. .	670	. .	700	. .	50.5	10 33 21.8	. .	+ 10.1	61 39 53.1	− 4.7
3	334 56	4.7	4.0	22.7	27.5	39	480	540	. .	. .	. .	50.5	25 0 45.1	. .	+ 24.9	76 7 31.2	
4	335 28	13.8	13.4	1.4	6.0	40	. .	. .	. .	440	520	50.5	24 29 8.0	470	+ 24.4	75 35 53.6	
5	333 46	13.9	13.0	1.8	10.0	40	260	. .	. .	. .	240	50.5	26 11 6.0	. .	+ 26.2	77 17 53.4	
6	333 46	13.9	13.0	1.8	10.0	39	. .	690	. .	690	. .	50.5	26 10 57.3	. .	+ 26.2	77 17 44.7	
7	336 20	11.8	10.5	24.3	7.3	36	. .	080	. .	080	. .	50.5	23 35 58.1	435	+ 23.1	74 42 42.4	+ 1.4
8	290 38	5.8	4.0	21.9	29.0	31	. .	300	. .	320	. .	52.4	69 16 40.8	628	+ 2 25.5	120 25 27.5	− 0.8
9	299 58	4.5	3.0	20.8	25.1	34	. .	510	. .	470	. .	52.4	59 57 27.8	. .	+ 1 35.7	111 5 24.7	− 0.6
10	47 38	2.6	3.5	23.2	27.0	36	. .	770	740	720	. .	52.4	312 18 3.3	. .	− 1 1.0	3 23 23.5	− 0.8
11	295 34	13.5	10.9	28.9	4.6	33	. .	040	. .	960	. .	52.4	64 21 13.5	. .	+ 1 55.1	115 29 29.8	− 3.2
12	288 0	7.0	5.0	22.3	29.9	33	. .	365	. .	300	. .	52.4	71 55 12.6	630	+ 2 48.3	123 4 22.1	− 5.1
13	295 56	12.2	10.2	28.1	3.0	29	. .	. .	. .	555	. .	52.4	63 58 19.6	. .	+ 1 53.3	115 6 34.1	− 2.5
14	293 58	5.5	3.9	22.5	29.3	39	. .	. .	. .	. .	565	52.4	65 58 47.4	. .	+ 2 4.1	117 7 12.7	− 2.6
15	300 36	10.1	8.0	25.5	1.5	36	. .	. .	. .	815	880	52.4	59 20 9.3	638	+ 1 33.6	110 28 4.1	− 0.6
16	319 44	11.0	10.3	28.1	2.8	36	. .	295	. .	365	. .	52.4	40 12 3.4	. .	+ 47.1	91 19 11.7	+ 4.7
17	298 26	10.4	9.0	27.1	2.3	36	. .	990	. .	980	. .	52.4	61 30 12.5	. .	+ 1 42.3	112 38 16.0	+ 1.7
18	323 54	10.0	8.9	26.1	2.1	32	. .	. .	. .	900	950	52.4	36 1 9.8	. .	+ 40.5	87 8 11.5	− 0.1
19	313 44	11.1	9.0	28.2	2.9	33	. .	040	. .	060	. .	52.4	46 11 12.7	650	+ 58.1	97 18 32.0	+ 2.4
20	331 20	5.0	3.7	22.0	26.5	31	. .	905	. .	970	. .	52.4	28 34 49.8	650	+ 30.4	79 41 41.4	+ 0.7
21	356 2	5.2	3.8	23.1	27.0	34	. .	520	. .	535	. .	52.4	3 53 30.2	. .	+ 3.8	54 59 55.2	+ 9.6
22	354 56	6.3	5.6	24.7	28.7	32	. .	895	. .	925	. .	52.4	4 59 6.8	655	+ 4.9	56 5 32.9	+ 9.5
23	307 2	8.0	5.8	24.0	1.3	36	. .	465	. .	430	. .	52.4	52 54 1.9	. .	+ 1 13.6	104 1 36.7	+ 1.7
24	300 42	5.7	3.6	21.0	27.9	34	. .	675	. .	670	. .	52.4	59 13 31 8	. .	+ 1 33.5	110 21 26.5	+ 7.3
25	344 22	5.0	4.0	21.2	26.7	37	. .	090	. .	050	. .	52.4	15 34 8.6	. .	+ 15.6	66 40 45.4	+ 9.3
26	299 24	7.2	5.5	23.5	28.4	31	. .	315	180	015	. .	52.4	60 30 39.8	. .	+ 1 38.5	111 38 39.5	
27	340 44	6.2	5.3	22.5	27.0	35	. .	780	. .	780	. .	52.4	19 11 49.8	657	+ 19.5	70 18 30.5	+ 9.5
28	326 36	12.2	11.2	1.3	6.5	35	. .	580	. .	500	. .	51.0	33 19 52.1	. .	+ 36.0	84 26 49.3	− 1.2
29	349 22	15.3	12.5	0.3	6.4	33	. .	775	. .	755	. .	51.0	10 33 25.8	610	+ 10.2	61 39 57.2	− 0.9
30	333 20	25.7	24.5	13.5	17.8	40	515	485	. .	. .	. .	51.0	26 36 51.5	. .	+ 27.1	77 43 39.8	
31	330 52	29.2	27.4	17.5	20.5	41	. .	. .	. .	660	650	51.0	26 5 11.5	514	+ 26.4	77 11 59.1	
32	331 30	14.8	14.5	3.5	8.0	33	200	. .	. .	. .	320	51.0	28 25 19.6	. .	+ 29.2	79 32 10.0	
33	331 30	14.8	14.5	3.5	8.0	32	. .	590	. .	660	. .	51.0	28 25 9.8	. .	+ 29.2	79 32 0.2	
34																	
35	342 16	14.2	14.0	28.5	6.8	35	. .	. .	. .	380	340	51.0	17 39 50.0	. .	+ 17.1	68 46 28.3	+ 0.8
36	336 20	10.3	10.4	29.3	4.9	36	. .	040	. .	030	. .	51.0	23 35 58.2	528	+ 23.5	74 42 42.9	+ 1.6
37	52 24	11.2	12.0	3.8	9.0	37	180	. .	180	. .	175	51.0	307 32 18.3	525	− 1 9.9	358 37 29.6	+ 0.6
38	310 34	12.3	10.8	29.0	5.5	36	. .	920	. .	940	. .	51.0	49 22 12.5	. .	+ 1 2.7	100 29 36.4	+ 0.7
39	290 38	8.0	6.4	23.3	29.6	31	. .	345	. .	325	. .	52.2	69 16 42.5	600	+ 2 24.2	120 25 27.9	− 0.6
40	299 58	5.6	3.1	21.1	26.9	34	. .	590	. .	635	. .	52.2	59 57 30.2	. .	+ 1 35.0	111 5 26.4	+ 1.0
41	47 38	5.0	6.2	24.6	27.5	36	. .	590	670	655	. .	52.2	312 18 3.2	. .	− 1 0.5	3 23 23.9	+ 0.2
42	288 0	10.2	8.1	25.0	1.1	33	. .	305	. .	290	. .	52.2	71 55 14.4	605	+ 2 47.1	123 4 22.7	− 5.4
43	295 56	12.1	10.4	27.9	2.1	29	. .	620	. .	. .	. .	52.2	63 58 20.2	. .	+ 1 52.8	115 6 34.2	− 2.5
44	295 56	12.1	10.4	27.9	2.1	28	. .	635	. .	640	. .	52.2	63 58 5.1	. .	+ 1 52.8	115 6 19.1	− 2.5
45																	
46	23 40	1.0	0.7	17.3	21.2	38	. .	. .	. .	680	. .	52.2	336 16 29.3	612	− 24.3	27 22 26.2	+13.2
47	319 44	11.3	9.1	26.7	1.8	36	. .	. .	. .	485	515	52.2	40 12 4.8	. .	+ 46.8	91 19 12.8	+ 4.9
48	298 26	13.8	11.4	29.8	4.1	37	. .	000	. .	014	. .	52.2	61 30 15.1	. .	+ 1 41.8	112 38 18.1	+ 0.8
49	292 58	5.8	3.6	20.5	28.6	37	. .	. .	. .	140	170	52.2	66 58 9.5	. .	+ 2 9.6	118 6 40.3	− 0.7

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
3	. .	. .	96.0
7	. .	. .	99.0
20	30.152	79.0	74.0
29	. .	. .	86.0
31	. .	. .	93.0
36	. .	. .	95.5
37	. .	. .	94.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
3	− 3.7	− 15 48.8	. .	− 15 52.5
4	− 3.6	+ 15 48.8	. .	+ 15 45.1
5	− 5.3	− 4.4	+ 0.1	− 9.6
6	− 5.3	+ 4.4	. .	− 0.9
26	− 53 5.4	− 16 41.7	. .	−1 9 46.7
30	− 3.9	− 15 50.3	. .	− 15 54.2
31	− 3.8	+ 15 50.3	. .	+ 15 46.5
32	− 2.5	− 4.9	. .	− 7.4
33	− 2.5	+ 4.9	. .	+ 2.4

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Aug. 21	1	B. A. C. 6658 . .	Ha.	15.4	18.3	19.8	26.1	28.3	30.7	36.9	38.6	41.3	20 28.38	— 0.93	. .	—11.73	19 20 15.72	— 2.31
	2	Anonymous . .	Ha.	. .	. .	49.1	51.4	53.4	55.6	57.8	. .	. .	20 53.46	— 0.93	. .	—11.73	19 20 40.80	— 2.31
	3	*f* Sagittarii . . .	Ha.	55.7	58.4	0.1	6.5	8.7	10.8	17.5	19.0	21.8	39 8.72	— 0.94	. .	—11.73	19 38 56.05	— 2.35
	4	O. Arg. S. 20022 .	Ha.	. .	. .	3.6	5.9	8.1	10.4	12.8	. .	. .	45 8.16	— 1.11	. .	—11.73	19 44 55.32	— 2.57
	5	ω Sagittarii . . .	Ha.	. .	. .	. .	. .	17.4	19.6	24.2	26.0	28.8	48 15.10	— 1.10	. .	—11.73	19 48 2.27	— 2.57
	6	Anonymous . .	Ha.	15.0	17.8	19.4	. .	. .	. .	36.9	38.4	41.2	4 28.12	— 0.27	. .	—11.74	20 4 16.11	— 2.09
	7	B. A. C. 6933 . .	Ha.	. .	. .	27.6	29.7	31.8	33.9	36.2	. .	. .	4 31.84	— 0.27	. .	—11.74	20 4 19.83	— 2.09
	8	Anonymous . .	Ha.	46.6	49.3	50.9	57.4	59.5	1.7	8.3	9.9	12.6	15 59.58	— 0.29	. .	—11.74	20 15 47.55	— 2.12
	9	π Capricorni . .	Ha.	1.7	4.5	5.9	12.5	14.7	16.9	23.3	25.0	27.8	20 14.70	— 0.93	—11.72	—11.74	20 20 2.03	+ 0.01
	10	ε Delphini . . .	Ha.	7.8	10.3	11.9	18.2	20.3	22.2	28.6	30.1	32.8	27 20.24	— 0.43	—11.76	—11.74	20 27 8.07	+ 0.07
	11	μ Aquarii . . .	Ha.	47.4	50.1	51.6	57.7	59.8	1.9	8.1	9.7	12.3	45 59.84	— 0.76	—11.76	—11.74	20 45 47.34	+ 0.09
23	12	δ Ursæ Minoris .	S.	. .	. .	35.0	10.0	44.5	18.0	. .	. .	. .	13 44.12	+11.21	. .	—12.53	18 13 42.80	
	13	1 Aquilæ . . .	S.	17.3	20.0	21.4	27.5	29.6	31.7	37.8	39.5	42.1	28 29.66	— 0.67	—12.55	—12.53	18 28 16.46	+ 0.09
	14	51 Cephei, S. P. .	S.	. .	. .	. .	49.0	4.0	22.0	. .	. .	. .	40 5.10	—14.60	. .	—12.53	18 39 37.97	— 0.13
	15	B. A. C. 6410 . .	S.	. .	. .	. .	. .	. .	. .	18.2	21.2	26.5	43 1.38	+ 0.80	. .	—12.53	18 42 49.65	— 1.93
	16	ζ Aquilæ . . .	S.	33.6	36.4	38.0	44.3	46.4	48.4	54.9	56.4	59.0	59 46.38	— 0.34	—12.53	—12.54	18 59 33.53	+ 0.10
	17	Anonymous . .	S.	43.0	45.5	47.3	53.8	55.8	58.1	4.6	6.1	8.9	9 55.90	— 0.85	. .	—12.54	19 9 42.51	— 2.27
	18	ρ^1 Sagittarii . .	S.	17.4	20.2	21.8	28.3	30.5	32.6	39.1	40.8	43.4	14 30.46	— 0.83	. .	—12.54	19 14 17.09	— 2.27
	19	B. A. C. 6628 . .	S.	33.3	36.2	38.0	44.9	47.3	49.6	56.5	58.2	1.2	16 47.24	— 1.01	. .	—12.54	19 16 33.69	— 2.47
	20	Anonymous . .	S.	. .	. .	. .	. .	46.3	49.1	54.4	56.4	59.8	28 43.73	— 1.30	. .	—12.54	19 28 29.89	— 2.85
	21	γ Aquilæ . . .	S.	13.0	15.7	17.3	23.3	25.4	27.5	33.6	35.3	37.8	40 25.43	— 0.40	—12.51	—12.55	19 40 12.48	— 0.01
	22	β Aquilæ . . .	S.	4.3	6.8	8.5	14.6	16.6	18.7	25.0	26.4	29.0	49 16.66	— 0.46	—12.55	—12.55	19 49 3.65	+ 0.03
	23	B. A. C. 6992 . .	S.	38.1	40.5	42.4	. .	. .	. .	59.2	0.8	3.5	13 50.75	— 0.78	. .	—12.55	20 13 37.42	— 2.41
	24	β Capricorni . .	S.	52.0	54.8	56.3	. .	. .	. .	13.3	. .	17.5	14 4.77	— 0.78	. .	—12.55	20 13 51.44	— 2.41
25	25	γ^1 Eridani . . .	Ha.	. .	. .	14.3	16.3	18.4	20.5	22.7	. .	. .	52 18.44	— 0.76	—13.06	—12.96	3 52 4.72	+ 0.14
	26	γ Tauri	Ha.	32.3	35.0	36.6	43.0	45.0	47.1	53.5	55.1	57.7	12 45.03	— 0.31	—12.92	—12.96	4 12 31.76	— 0.03
	27	ε Tauri	Ha.	10.0	12.8	14.4	20.8	23.0	25.1	31.6	33.2	35.9	21 22.98	— 0.25	—12.99	—12.96	4 21 9.77	+ 0.02
	28	α Tauri	Ha.	36.2	38.9	40.4	46.8	48.9	51.0	57.3	59.0	1.6	28 48.90	— 0.30	—12.89	—12.96	4 28 35.64	— 0.09
	29	Moon II, N. . .	Ha.	22.0	24.9	26.6	33.2	35.5	37.8	44.6	46.3	49.0	36 35.54	— 0.20	. .	—12.96	4 36 22.38	—67.46
26	30	δ Ursæ Minoris .	S.	. .	. .	33.5	9.0	42.0	17.0	51.5	. .	. .	13 42.60	. .	. .	. .	. . . .	. .
	31	1 Aquilæ . . .	S.	17.9	20.4	22.0	28.1	30.2	32.3	38.5	40.0	42.5	28 30.21	— 0.78	—13.03	—13.00	18 28 16.43	+ 0.10
	32	α Lyræ	S.	35.0	38.5	40.4	48.2	50.9	53.5	1.3	3.2	6.6	32 50.84	+ 0.06	—12.95	—13.00	18 32 37.90	— 0.03
	33	B. A. C. 6387 . .	S.	11.1	13.9	15.5	22.1	24.1	26.2	32.9	34.4	37.3	40 24.17	— 0.31	. .	—13.00	18 40 10.86	— 1.75
	34	B. A. C. 6410 . .	S.	42.0	45.0	53.4	57.4	1.6	5.9	10.2	18.7	21.8	43 1.78	+ 0.85	. .	—13.00	18 42 49.63	— 1.80
	35	Saturn I, N. . .	S.	16.1	18.8	20.5	. .	. .	. .	38.1	39.8	42.4	5 29.28	— 1.04	. .	—13.00	19 5 15.24	. .
	36	Saturn II, S. . .	S.	. .	. .	26.2	28.4	30.6	32.8	35.0	. .	. .	5 30.60	— 1.04	. .	—13.00	19 5 16.56	. .
	37	ρ^2 Sagittarii . .	S.	26.2	28.8	30.5	36.9	39.0	41.2	47.6	49.3	52.0	14 39.06	— 0.96	. .	—13.00	19 14 25.10	— 2.25
	38	B. A. C. 6658 . .	S.	. .	. .	25.2	27.4	29.6	31.9	33.9	. .	. .	20 29.60	— 0.97	. .	—13.00	19 20 15.63	— 2.27
	39	Anonymous . .	S.	. .	. .	39.2	41.9	44.5	47.0	49.9	. .	. .	28 44.50	— 1.48	. .	—13.00	19 28 30.02	— 2.82
	40	γ Aquilæ . . .	S.	13.6	16.2	17.7	24.0	26.0	28.0	34.2	35.8	38.4	40 25.99	— 0.47	—13.02	—13.00	19 40 12.52	+ 0.05
	41	O. Arg. S. 20024 .	S.	59.8	2.6	4.3	. .	. .	. .	22.8	24.6	27.4	45 13.58	— 1.14	. .	—13.00	19 44 59.44	— 2.53
	42	Anonymous . .	S.	. .	. .	9.1	11.3	13.9	16.1	18.3	. .	. .	45 13.74	— 1.14	. .	—13.00	19 44 59.60	— 2.53
	43	29^1 Aquarii . . .	S.	29.8	32.3	34.1	. .	. .	. .	51.2	52.8	55.5	55 42.62	— 0.95	. .	—13.00	21 55 28.67	— 2.58
	44	29^2 Aquarii . . .	S.	. .	. .	38.4	40.7	42.9	45.0	47.3	. .	. .	55 42.86	— 0.94	. .	—13.00	21 55 28.92	— 2.58
	45	42 Aquarii . . .	S.	0.4	3.0	4.7	11.0	13.1	15.1	21.5	23.0	25.7	10 13.06	— 0.87	. .	—13.00	22 9 59.19	— 2.51
	46	50 Aquarii . . .	S.	39.5	41.9	43.5	49.9	52.0	54.1	0.4	2.0	4.7	17 52.00	— 0.88	. .	—13.00	22 17 38.12	— 2.52
	47	κ Aquarii . . .	S.	11.5	14.0	15.5	21.6	23.6	25.8	32.0	33.5	36.0	31 23.72	— 0.72	. .	—13.00	22 31 10.00	— 2.40
	48	67 Aquarii . . .	S.	37.0	39.6	41.2	47.4	49.4	51.4	57.7	59.3	1.7	36 49.41	— 0.77	. .	—13.00	22 36 35.64	— 2.42
29	49	α Canis Minoris .	S.	. .	. .	. .	. .	. .	. .	58.6	0.2	2.6	32 50.38	— 0.65	—13.56	—13.63	7 32 36.10	— 0.23

4. Wire A used.
29, 34. Bisections at sets B and D.
37. Telescope micrometer reading increased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	302 28	7.4	4.1	22.0	28.6	38	. .	425	. .	. .	. .	52.2	57 28 30.2	. .	+ 1 26.7	108 36 18.1	+ 1.8
2	302 28	7.4	4.1	22.0	28.6	40	. .	. .	. .	865	. .	52.2	57 29 7.6	. .	+ 1 26.6	108 36 55.4	+ 1.8
3	301 0	4.4	2.0	20.1	24.9	37	. .	005	. .	000	. .	52.2	58 56 5.6	620	+ 1 31.6	110 3 58.4	+ 2.5
4	293 52	9.0	7.0	24.2	0.4	36	. .	. .	. .	230	. .	52.2	66 1 24.2	. .	+ 2 3.8	117 9 49.2	+ 1.4
5	294 26	12.7	10.5	27.5	3.1	35	. .	. .	. .	390	450	52.2	65 29 49.2	. .	+ 2 0.9	116 38 11.3	+ 1.9
6	341 34	10.6	9.5	26.8	28.5	35	770	. .	. .	. .	. .	52.2	18 21 53.2	. .	+ 18.4	69 28 32.8	+ 9.8
7	341 34	10.6	9.5	26.8	28.5	32	. .	. .	. .	345	305	52.2	18 21 0.0	622	+ 18.4	69 27 39.6	+ 9.8
8	340 18	2.7	1.6	19.1	24.8	35	. .	710	. .	705	. .	52.2	19 37 45.2	. .	+ 19.8	70 44 26.2	+ 9.9
9	302 26	13.4	10.5	27.4	3.0	35	. .	. .	. .	700	740	52.2	57 29 54.0	. .	+ 1 26.8	108 37 42.0	+ 2.3
10	331 54	7.0	5.4	22.8	26.1	31	. .	800	. .	830	. .	52.2	28 0 48.6	. .	+ 29.5	79 7 39.3	+ 0.2
11	311 36	14.2	11.5	28.9	4.5	36	. .	925	. .	895	. .	52.2	48 20 13.7	626	+ 1 2.2	99 27 37.1	+ 3.1
12																	
13	312 44	1.9	29.5	17.3	23.5	38	. .	799	. .	769	. .	51.2	47 12 29.8	. .	+ 1 0.1	98 19 51.1	+ 1.1
14	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . . .	635			
15	21 56	16.5	15.5	3.0	6.7	32	. .	. .	. .	015	075	51.2	337 59 2.1	640	— 22.5	29 5 0.8	+13.9
16	334 44	10.3	7.5	26.0	0.0	38	. .	570	. .	590	. .	51.2	25 12 34.7	640	+ 26.2	76 19 22.1	+ 1.2
17	301 52	4.2	1.2	18.0	25.8	39	. .	690	. .	700	. .	51.2	58 4 45.5	641	+ 1 29.2	109 12 35.9	+ 1.0
18	302 58	5.2	2.5	18.6	26.4	34	164	142	. .	. .	. .	51.2	56 57 21.2	642	+ 1 25.5	108 5 7.9	+ 1.6
19	292 58	7.6	4.7	22.0	28.9	37	. .	091	. .	101	. .	51.2	66 58 9.0	643	+ 2 10.3	118 6 40.5	— 0.8
20	281 6	16.6	14.4	0.5	7.6	38	. .	. .	. .	012	060	51.2	78 50 32.1	645	+ 4 34.5	130 1 27.8	— 2.8
21	331 20	13.1	10.5	27.8	3.4	31	. .	480	. .	510	. .	51.2	28 34 48.6	648	+ 30.4	79 41 40.2	+ 0.2
22	327 8	14.3	11.0	29.3	4.5	34	. .	455	. .	455	. .	51.2	32 47 35.1	651	+ 36.0	83 54 32.3	+ 0.3
23	305 52	14.8	10.5	27.7	5.8	34	. .	055	. .	. .	075	51.2	54 3 28.8	658	+ 1 17.0	105 11 7.0	+ 5.4
24	305 52	14.8	10.5	27.7	5.8	33	. .	410	. .	470	. .	51.2	54 3 19.3	658	+ 1 17.0	105 10 57.5	+ 5.4
25	307 10	8.1	4.2	22.5	0.3	30	. .	. .	. .	845	845	52.9	52 44 35.2	670	+ 1 13.6	103 52 10.0	+ 2.3
26	336 22	7.9	6.1	23.5	29.0	36	. .	740	. .	870	. .	52.9	23 34 7.4	. .	+ 24.4	74 40 53.0	+ 1.6
27	339 56	6.5	4.5	23.0	27.2	34	. .	545	. .	520	. .	52.9	19 59 31.1	. .	+ 20.3	71 6 12.6	+ 0.4
28	337 18	6.9	4.5	21.8	28.4	37	. .	020	. .	985	. .	52.9	22 38 9.2	. .	+ 23.3	73 44 53.7	+ 1.7
29	343 12	6.5	4.7	21.7	28.0	31	. .	620	565	505	. .	52.9	16 42 45.4	650	+ 16.8	67 49 23.4	
30	47 38	1.0	1.1	19.4	24.1	36	. .	. .	895	950	900	51.4	312 18 2.3	585	— 1 0.4	3 23 23.1	+ 0.3
31	312 44	6.3	3.5	20.9	28.8	38	. .	580	. .	580	. .	51.4	47 12 31.2	. .	+ 59.4	98 19 51.8	+ 1.9
32	359 42	10.4	8.5	27.5	29.6	34	. .	165	. .	220	. .	51.4	0 13 28.2	. .	+ 0.2	51 19 49.6	— 0.4
33	341 28	2.5	1.0	18.3	24.3	35	400	420	. .	. .	. .	51.4	18 27 39.5	. .	+ 18.4	69 34 19.1	+ 9.5
34	21 56	17.0	15.5	3.4	6.8	32	005	. .	. .	. .	010	51.4	337 59 1.3	595	— 22.3	29 5 0.2	+14.1
35	298 36	13.4	9.1	26.6	4.8	33	925	. .	. .	. .	945	51.4	61 19 25.7	. .	+ 1 40.6	112 27 27.5	
36	298 36	13.4	9.1	26.6	4.8	35	. .	150	. .	272	. .	51.4	61 19 45.5	. .	+ 1 40.6	112 27 47.3	
37	302 32	10.2	6.9	24.3	1.0	38	. .	387	. .	387	. .	51.4	57 24 46.8	605	+ 1 26.2	108 32 34.2	+ 1.4
38	302 28	10.0	5.3	23.8	0.0	38	. .	345	. .	357	. .	51.4	57 28 30.0	. .	+ 1 26.4	108 36 17.6	+ 1.7
39																	
40	331 20	11.6	9.4	26.7	1.0	31	. .	. .	. .	630	. .	51.4	28 34 49.4	608	+ 30.1	79 41 40.7	+ 1.0
41	293 52	10.7	7.6	25.1	2.6	38	. .	070	. .	086	. .	51.4	66 4 27.5	610	+ 2 3.9	117 12 52.6	+ 1.1
42	293 52	10.7	7.6	25.1	2.6	38	. .	. .	. .	. .	682	51.4	66 4 36.5	. .	+ 2 3.9	117 13 1.6	+ 1.1
43	303 30	12.3	9.2	26.3	2.7	39	800	. .	. .	. .	810	51.4	56 26 55.1	. .	+ 1 23.5	107 34 39.8	+10.8
44	303 30	12.3	9.2	26.3	2.7	39	. .	600	. .	660	. .	51.4	56 26 52.6	. .	+ 1 23.5	107 34 37.3	+10.8
45	307 36	16.0	13.8	0.0	6.1	37	. .	370	. .	382	. .	51.4	52 20 21.8	630	+ 1 11.9	103 27 54.9	+12.7
46	306 52	10.8	7.6	23.7	1.1	31	. .	755	. .	835	. .	51.4	53 2 50.4	. .	+ 1 13.7	104 10 25.3	+12.1
47	316 10	12.0	9.5	27.0	3.1	35	. .	469	. .	429	. .	51.4	43 45 48.6	632	+ 53.2	94 53 3.0	+13.6
48	313 26	14.6	11.2	29.3	4.7	37	. .	470	. .	530	. .	51.4	46 30 22.2	. .	+ 58.5	97 37 41.9	+12.9
49	326 36	7.7	4.6	22.0	1.0	35	. .	815	. .	825	. .	54.5	33 19 53.4	677	+ 36.9	84 26 51.5	+ 1.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
11	30.132	81.5	77.0
13	29.990	81.0	
14	. .	. .	72.5
41	30.036	82.0	76.7

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
29	—15 40.4	+ 15 3.6	. .	— 0 36.8
35	— 0.8	+ 9.9	. .	+ 9.1
36	— 0.8	— 9.9	. .	— 10.7

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Aug. 30	1	Sun II	S.	9.1	11.6	13.1	19.5	21.6	23.6	29.9	31.3	34.1	38 21.53	— 0.59	. .	—13.66	10 38 7.28	—64.44
	2	Polaris, S. P.	S.	. .	. .	20.0	55.0	30.0	6.0	40.0	. .	. .	13 30.20	. .	. .	. .	. . . .	. .
	3	α Virginis	S.	29.3	31.9	33.5	39.7	41.8	43.9	50.0	51.7	54.2	18 41.78	— 0.97	—13.52	—13.69	13 18 27.12	— 0.19
	4	δ Ursæ Minoris	S.	. .	54.5	. .	3.5	. .	. .	. .	. .	4.3	13 37.80	. .	. .	. .	. . . .	. .
	5	1 Aquilæ	S.	18.5	21.2	22.7	29.1	31.0	33.0	39.2	40.7	43.5	28 30.99	— 0.89	—13.74	—13.74	18 28 16.36	+ 0.07
	6	B. A. C. 6387	S.	11.9	14.6	16.4	22.8	25.0	27.1	33.7	35.4	38.0	40 24.99	+ 0.31	. .	—13.74	18 40 10.94	— 1.68
	7	B. A. C. 6410	S.	. .	. .	53.6	57.8	2.1	6.2	10.4	. .	. .	43 2.02	+ 1.17	. .	—13.74	18 42 49.45	— 1.65
	8	ζ Aquilæ	S.	35.0	37.6	39.2	45.5	47.6	49.7	56.0	57.7	0.2	59 47.61	— 0.45	—13.73	—13.74	18 59 33.42	+ 0.07
	9	Saturn I, N.	S.	. .	46.5	48.2	. .	. .	. .	5.8	7.5	10.3	4 57.01	— 1.19	. .	—13.75	19 4 42.07	. .
	10	Saturn II, S.	S.	. .	. .	53.9	56.0	58.4	0.6	2.8	. .	. .	4 58.34	— 1.19	. .	—13.75	19 4 43.40	. .
	11	ρ^1 Sagittarii	S.	. .	. .	27.6	29.8	32.0	34.1	36.2	. .	. .	14 31.94	— 1.09	. .	—13.75	19 14 17.10	— 2.20
	12	δ Aquilæ	S.	. .	. .	15.0	17.1	19.1	21.1	23.2	. .	. .	19 19.10	— 0.66	—13.80	—13.75	19 19 4.69	+ 0.10
	13	γ Aquilæ	S.	14.3	17.0	18.5	24.7	26.8	28.9	35.1	36.7	39.3	40 26.81	— 0.52	—13.83	—13.75	19 40 12.54	+ 0.11
	14	O. Arg. S. 20024[1]	S.	0.6	3.4	5.3	. .	. .	. .	23.6	25.5	28.4	45 14.47	— 1.31	. .	—13.75	19 44 59.41	— 2.50
	15	O. Arg. S. 20024[2]	S.	. .	. .	. .	. .	14.6	16.9	19.2	. .	. .	45 14.60	— 1.31	. .	—13.75	19 44 59.54	— 2.50
	16	ω Sagittarii	S.	. .	. .	12.8	15.0	17.2	19.6	22.1	. .	. .	48 17.34	— 1.29	. .	—13.75	19 48 2.30	— 2.50
	17	33 Capricorni	S.	58.4	1.1	2.7	9.2	11.4	13.6	20.3	21.9	24.7	17 11.48	— 1.17	. .	—13.77	21 16 56.54	— 2.63
	18	ε Capricorni	S.	59.2	1.9	3.7	10.0	12.2	14.4	21.0	22.6	25.3	30 12.26	— 1.13	. .	—13.77	21 29 57.36	— 2.62
	19	γ Capricorni	S.	4.4	7.0	8.8	15.1	17.2	19.4	25.9	27.5	30.1	33 17.27	— 1.07	. .	—13.77	21 33 2.43	— 2.57
	20	λ Capricorni	S.	43.4	46.0	47.5	53.9	55.9	58.0	4.2	5.7	8.4	39 55.89	— 0.96	. .	—13.77	21 39 41.16	— 2.50
	21	B. A. C. 7620	S.	50.0	52.6	54.2	0.4	2.5	4.6	10.9	12.4	15.1	47 2.52	— 0.93	. .	—13.77	21 46 47.82	— 2.49
	22	29[1] Aquarii	S.	30.6	33.3	34.9	. .	. .	. .	52.0	53.6	56.3	55 43.45	— 1.07	. .	—13.77	21 55 28.61	— 2.59
	23	29[2] Aquarii	S.	. .	. .	39.5	41.6	43.9	46.0	48.0	. .	. .	55 43.80	— 1.07	. .	—13.77	21 55 28.96	— 2.59
	24	α Aquarii	S.	. .	. .	25.4	27.5	29.5	31.5	33.6	. .	. .	59 29.50	— 0.73	—13.82	—13.77	21 59 15.00	+ 0.08
	25	42 Aquarii	S.	1.3	4.0	5.6	11.9	14.0	16.0	22.4	24.0	26.6	10 13.98	— 0.99	. .	—13.77	22 9 59.22	— 2.59
	26	ρ Aquarii	S.	32.5	35.1	36.8	42.9	44.9	47.0	53.1	54.7	57.3	13 44.92	— 0.88	. .	—13.78	22 13 30.26	— 2.47
	27	51 Aquarii	S.	31.6	34.2	35.6	41.8	43.9	45.9	52.0	53.6	56.2	17 43.87	— 0.82	. .	—13.78	22 17 29.27	— 2.44
	28	η Aquarii	S.	51.3	54.0	55.5	1.7	3.7	5.8	11.9	13.4	16.0	29 3.70	— 0.73	—13.86	—13.78	22 28 49.19	+ 0.11
	29	κ Aquarii	S.	. .	. .	20.5	22.6	24.7	26.7	28.7	. .	. .	31 24.64	— 0.80	. .	—13.78	22 31 10.06	— 2.43
	30	B. A. C. 7937	S.	. .	. .	. .	. .	. .	35.5	39.8	41.4	44.0	39 31.14	— 0.34	. .	—13.78	22 39 17.02	— 2.22
	31	λ Aquarii	S.	1.0	3.5	5.1	11.2	13.3	15.3	21.5	23.1	25.6	46 13.29	— 0.88	—13.79	—13.78	22 45 58.63	+ 0.09
	32	α Piscis Australis	S.	38.2	41.2	43.0	49.9	52.2	54.8	1.7	3.6	6.4	50 52.33	— 1.38	—13.69	—13.78	22 50 37.17	— 0.05
	33	α Pegasi	S.	27.0	29.7	31.3	37.6	39.7	41.9	48.2	49.8	52.4	58 39.73	— 0.47	—13.76	—13.78	22 58 25.48	+ 0.01
	34	α^1 Geminorum	S.	25.3	28.4	30.2	. .	. .	. .	49.4	51.2	54.2	26 39.78	0.00	. .	—13.88	7 26 25.90	. .
	35	α^2 Geminorum	S.	. .	. .	35.4	37.7	40.2	42.5	45.0	. .	. .	26 40.16	0.00	—13.99	—13.88	7 26 26.28	+ 0.35
	36	α Canis Minoris	S.	38.4	41.0	42.6	48.6	50.7	52.6	58.9	0.5	3.0	32 50.70	— 0.58	—13.91	—13.88	7 32 36.24	— 0.11
	37	β Geminorum	S.	29.2	32.3	33.9	40.8	43.1	45.6	52.5	54.0	57.0	37 43.16	— 0.09	—13.90	—13.88	7 37 29.19	— 0.01
Sept. 3	38	51 Cephei, S. P.	S.	. .	. .	40.0	0.5	18.0	33.5	52.0	. .	. .	40 16.80	. .	. .	. .	. . . .	. .
	39	ζ Aquilæ	S.	36.0	38.7	40.2	46.6	48.6	50.6	57.1	58.7	1.3	59 48.64	— 0.24	—15.03	—15.02	18 59 33.38	+ 0.09
	40	Saturn I, S.	S.	17.8	20.5	22.2	. .	. .	. .	40.0	41.5	44.2	4 31.03	— 0.89	. .	—15.02	19 4 15.12	. .
	41	Saturn II, N.	S.	. .	. .	27.8	30.1	32.2	34.5	36.7	. .	. .	4 32.26	— 0.89	. .	—15.02	19 4 16.35	. .
	42	ρ^2 Sagittarii	S.	27.9	30.6	32.2	38.8	41.0	43.0	49.6	51.2	53.8	14 40.90	— 0.81	. .	—15.02	19 14 25.07	— 2.16
	43	κ Aquilæ	S.	5.6	8.2	9.7	16.0	18.0	20.0	26.2	27.7	30.3	30 17.97	— 0.60	—15.02	—15.02	19 30 2.35	+ 0.04
	44	γ Aquilæ	S.	15.0	17.8	19.5	25.6	27.7	29.8	36.0	37.6	40.1	40 27.68	— 0.30	—14.90	—15.02	19 40 12.36	— 0.03
	45	α Aquilæ	S.	37.1	39.8	41.4	47.6	49.7	51.8	57.8	59.5	2.0	44 49.63	— 0.33	—15.01	—15.03	19 44 34.27	+ 0.02
	46	λ Ursæ Minoris	S.	. .	. .	. .	. .	. .	46.0	. .	43.0	. .	52 6.33	+37.34	. .	—15.03	19 52 38.64	— 0.23
	47	τ Aquilæ	S.	58.3	0.9	2.4	8.6	10.6	12.8	18.9	20.3	23.0	58 10.64	— 0.36	—15.02	—15 03	19 58 55.25	+ 0.01
	48	B. A. C. 6992	S.	. .	. .	49.0	51.0	53.1	55.2	57.4	. .	. .	13 53.14	— 0.74	. .	—15.03	20 13 37.37	— 2.35
	49	β Capricorni	S.	. .	. .	3.0	5.0	7.2	9.3	. .	. .	. .	14 7.18	— 0.74	. .	—15.03	20 13 51.41	— 2.35
	50	O. Arg. S. 20533	S.	38.9	41.6	43.1	49.9	52.0	54.2	0.7	2.5	5.2	21 52.01	— 0.86	. .	—15.03	20 21 36.12	— 2.58

7, 11. Bisections at sets B and D.
31. Telescope micrometer reading increased five revolutions in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1																	
2																	
3																	
4	47 38	2.7	2.1	19.9	25.5	36	. .	. .	730	. .	750	54.5	312 18 3.8	722	− 1 2.2	3 23 22.8	+ 0.5
5	312 44	9.8	6.9	25.0	2.4	38	. .	070	. .	105	. .	54.5	47 12 30.4	. .	+ 1 1.2	98 19 52.8	+ 2.9
6	341 28	5.1	3.5	20.6	27.1	35	. .	055	. .	070	. .	54.5	18 27 39.6	728	+ 18.9	69 34 19.7	+10.0
7	21 56	13.5	11.2	29.3	4.1	32	087	. .	. .	. .	085	54.5	337 59 1.9	. .	− 23.0	29 5 0.1	+14.8
8	334 44	9.1	6.2	25.4	0.5	38	. .	432	. .	418	. .	54.5	25 12 35.0	731	+ 26.7	76 19 22.9	+ 2.7
9	298 36	3.0	0.5	17.6	26.6	38	940	. .	. .	. .	005	54.5	61 20 37.3	. .	+ 1 43.6	112 28 42.1	
10	298 36	3.0	0.5	17.6	26.6	40	. .	. .	. .	225	. .	54.5	61 20 56.5	. .	+ 1 43.6	112 29 1.3	
11	302 58	9 22.6	19.5	6.5	14.9	34	680	. .	. .	. .	650	54.5	56 57 20.2	. .	+ 1 27.2	108 5 8.6	+ 1.4
12	323 54	27.1	24.3	11.3	18.9	31	. .	. .	. .	782	750	54.5	36 1 10.2	738	+ 41.3	87 8 12.7	+ 2.1
13	331 20	11.3	8.0	24.1	2.1	31	380	392	. .	. .	. .	54.5	28 34 48.0	. .	+ 31.0	79 41 40.2	+ 0.9
14	293 52	11.2	7.7	25.7	4.2	37	. .	650	. .	670	. .	54.5	66 4 24.9	. .	+ 2 7.6	117 12 53.7	+ 0.8
15	293 52	11.2	7.7	25.7	4.2	38	. .	. .	. .	. .	350	54.5	66 4 35.2	. .	+ 2 7.6	117 13 4.0	+ 0.8
16	294 26	14.9	10.7	28.6	7.1	34	. .	. .	. .	920	930	54.5	65 29 45.8	742	+ 2 4.2	116 38 11.2	+ 1.2
17	299 40	10.4	6.6	24.8	2.6	34	. .	. .	. .	290	. .	54.5	60 15 32.0	735	+ 1 39.6	111 23 32.8	+ 8.0
18	301 2	10.0	6.1	24.8	2.5	36	. .	964	. .	940	. .	54.5	58 54 12.7	. .	+ 1 34.5	110 2 8.4	+ 9.0
19	303 50	7.8	3.6	22.3	29.7	37	. .	933	. .	947	. .	54.5	56 6 25.4	. .	+ 1 24.9	107 14 11.5	+ 8.5
20	309 6	9.6	5.5	24.2	2.4	34	. .	554	. .	574	. .	54.5	50 49 35.6	762	+ 1 10.1	101 57 6.9	+10.3
21	310 8	6.4	2.7	20.8	29.1	32	. .	905	. .	905	. .	54.5	49 47 7.0	. .	+ 1 7.6	100 54 35.8	+10.8
22	303 28	6.6	3.4	20.6	27.6	31	934	. .	. .	. .	990	54.5	56 26 52.1	. .	+ 1 26.1	107 34 39.4	+10.7
23	303 28	6.6	3.4	20.6	27.6	31	. .	838	. .	848	. .	54.5	56 26 50.4	. .	+ 1 26.1	107 34 37.7	+10.7
24	320 6	10.4	7.8	26.1	2.7	32	. .	530	. .	520	. .	54.5	39 49 5.7	. .	+ 47.7	90 56 14.6	+ 0.4
25	307 36	11.0	8.3	26.5	4.0	37	. .	313	. .	307	. .	54.5	52 20 19.8	. .	+ 1 14.1	107 27 55.1	+11.6
26	312 36	9.9	7.7	26.9	3.8	31	. .	755	. .	735	. .	54.5	47 18 54.0	. .	+ 1 2.1	98 26 17.3	+12.1
27	315 34	8.2	5.5	24.6	1.2	34	. .	342	. .	352	. .	54.5	44 21 31.8	. .	+ 56.0	95 28 49.0	+12.4
28																	
29	316 10	9 23.8	21.0	8.9	15.1	36	. .	290	. .	307	. .	54.5	43 45 45.6	773	+ 54.9	94 53 1.7	+12.9
30	339 44	9.0	6.0	24.1	29.5	34	. .	. .	. .	380	386	54.5	20 11 32.2	. .	+ 21.1	71 18 14.5	+12.3
31	312 48	5.5	1.9	20.7	27.5	31	. .	357	. .	373	. .	54.5	47 7 59.3	. .	+ 1 1.7	98 15 22.2	+ 0.4
32	290 46	10.9	8.9	26.3	4.5	31	. .	890	. .	918	. .	54.5	69 8 56.9	. .	+ 2 29.6	120 17 47.7	+ 1.8
33	335 34	7.7	6.0	25.4	0.3	36	. .	079	. .	075	. .	54.5	24 21 58.4	776	+ 26.0	75 28 45.6	+ 0.6
34	353 12	7.3	3.3	22.5	29.8	34	550	. .	. .	. .	570	54.5	6 43 33.9	739	+ 6.8	57 50 1.9	
35	353 12	7.3	3.3	22.5	29.8	34	. .	360	. .	386	. .	54.5	6 43 30.7	. .	+ 6.8	57 49 58.7	− 0.8
36	326 36	7.7	5.1	23.1	0.7	35	. .	670	. .	602	. .	54.5	33 19 50.9	. .	+ 37.1	84 26 49.2	− 0.7
37	349 22	5.3	3.2	21.8	28.0	34	. .	194	. .	190	. .	54.5	10 33 26.8	733	+ 10.5	61 39 58.5	− 0.4
38	53 46	9.5	7.7	26.9	0.8	32	. .	367	318	259	. .	52.4	306 8 59.8	763	− 1 17.7	357 14 3.3	+ 1.5
39	334 44	6.3	4.0	23.4	26.0	38	. .	585	. .	575	. .	52.4	25 12 32.4	. .	+ 26.8	76 19 20.4	+ 0.5
40	298 34	11.9	8.7	26.7	1.5	36	. .	. .	. .	110	. .	52.4	61 21 59.0	. .	+ 1 43.8	112 30 4.0	
41	298 34	11.9	8.7	26.7	1.5	34	. .	. .	. .	. .	850	52.4	61 21 39.4	. .	+ 1 43.8	112 29 44.4	
42	302 32	9.9	6.4	24.5	0.6	39	. .	100	. .	110	. .	52.4	57 24 43.2	769	+ 1 28.8	108 32 33.2	+ 1.2
43	313 44	9.7	6.8	25.5	0.7	32	. .	975	. .	015	. .	52.4	46 11 9.7	. .	+ 59.3	97 18 30.2	− 1.0
44	331 20	3.0	1.4	19.4	22.5	31	. .	850	. .	860	. .	52.4	28 34 45.8	780	+ 31.1	79 41 38.1	− 0.8
45																	
46																	
47	327 58	9.3	4.8	23.6	28.5	35	. .	532	. .	510	. .	52.4	31 57 47.0	. .	+ 35.6	83 4 43.8	+ 0.4
48	305 52	9.8	5.8	23.8	29.5	34	108	. .	. .	. .	. .	52.4	54 3 25.8	738	+ 1 18.7	105 11 5.7	+ 5.3
49	305 52	9.8	5.8	23.8	29.5	33	410	. .	. .	. .	. .	52.4	54 3 15.1	. .	+ 1 18.7	105 10 55.0	+ 5.3
50	299 44	10.0	7.7	24.8	1.3	33	. .	548	. .	600	. .	52.4	60 11 18.8	. .	+ 1 39.5	111 19 19.5	+ 4.3

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
17	29.950	70.0	58.8
34	29.932	67.3	64.1

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
9	− 0.8	+ 9.6	. .	+ 8.8
10	− 0.8	− 9.6	. .	− 10.4
40	− 0.8	− 9.8	. .	− 10.6
41	− 0.8	+ 9.8	. .	+ 9.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Sept. 3	1	τ Capricorni. . .	S.	16.0	18.6	20.1	26.5	28.6	30.7	37.0	38.7	41.4	30 28.62	— 0.75	. .	—15.04	20 30 12.83	— 2.41
	2	Anonymous . .	S.	23.2	26.5	28.5	36.0	38.5	41.0	48.5	50.4	53.4	37 38.44	+ 0.18	. .	—15.04	20 37 23.58	— 2.08
	3	Weisse (2) 1373 .	S.	. .	. .	. .	. .	. .	. .	31.1	32.9	36.0	42 21.24	+ 0.16	. .	—15.04	20 42 6.36	— 2.10
	4	α Aquarii . . .	S.	18.2	20.8	22.4	28.5	30.5	32.5	38.7	40.2	42.8	59 30.51	— 0.49	—15.06	—15.05	21 59 14.97	+ 0.04
	5	42 Aquarii . . .	S.	2.4	5.1	6.7	12.9	15.0	17.1	23.4	25.0	27.6	10 15.02	— 0.71	. .	—15.05	22 9 9.26	— 2.55
	6	Anonymous . .	S.	. .	. .	46.0	48.1	50.2	52.3	54.4	. .	. .	15 50.20	— 0.62	. .	—15.06	22 15 34.52	— 2.48
	7	Anonymous . .	S.	. .	. .	0.4	2.5	4.5	6.7	8.8	. .	. .	16 4.58	— 0.62	. .	—15.06	22 15 48.90	— 2.48
	8	Anonymous . .	S.	19.2	21.8	23.4	29.5	31.6	33.6	39.7	41.5	44.0	21 31.59	— 0.60	. .	—15.06	22 21 15.93	— 2.46
	9	η Aquarii . . .	S.	52.5	55.0	56.6	2.7	4.7	6.7	12.9	14.4	17.0	29 4.72	— 0.49	—15.10	—15.06	22 29 49.17	+ 0.07
	10	70 Aquarii . . .	S.	51.7	53.3	56.0	2.1	4.2	6.4	12.6	14.2	16.7	42 4.24	— 0.67	. .	—15.06	22 41 48.51	— 2.49
	11	α Piscis Australis .	S.	39.2	42.2	44.0	51.0	53.4	55.7	2.9	4.6	7.7	50 53.41	— 1.06	—15.06	—15.06	22 50 37.29	+ 0.04
	12	α Pegasi	S.	28.0	30.8	32.5	38.8	40.9	43.0	49.3	50.9	53.5	58 40.87	— 0.23	—15.11	—15.06	22 58 25.58	+ 0.08
	13	α^1 Geminorum . .	S.	26.6	39.4	31.3	. .	. .	. .	50.5	52.4	55.4	26 42.60	. .	. .	. .	. . . .	. .
	14	α^2 Geminorum . .	S.	. . . .		36.5	38.9	41.4	43.7	46.1	. .	. .	26 41.32	. .	. .	. .	. . . .	. .
	15	α Canis Minoris. .	S.	39.7	42.2	43.7	49.9	51.9	54.0	0.0	1.6	4.1	32 51.90	. .	. .	. .	. . . .	. .
	16	β Geminorum . .	S.	30.4	33.4	35.0	42.0	44.3	46.7	53.6	55.4	58.3	37 44.34	. .	. .	. .	. . . .	. .
5	17	α Canis Minoris. .	S.	40.4	42.9	44.5	50.7	52.6	54.6	0.8	2.3	4.9	32 52.63	— 0.69	—15.60	—15.60	7 32 36.34	— 0.16
	18	β Geminorum . .	S.	31.4	34.1	36.0	42.7	45.1	47.4	54.4	56.1	59.0	37 45.13	— 0.20	—15.60	—15.60	7 37 29.33	— 0.03
6	19	Polaris, S. P. . .	S.	. .	. .	28.0	2.0	37.0	12.0	45.5	. .	. .	13 36.90	. .	. .	. .	. . . .	. .
	20	α Virginis . . .	S.	31.5	34.2	35.8	41.9	44.0	46.0	52.3	53.8	56.4	18 43.99	— 1.03	—15.71	—15.64	13 18 27.32	+ 0.05
	21	β Cephei	S.	. .	. .	10.9	17.1	23.1	28.9	40.9	45.2	53.0	27 16.99	+ 2.30	. .	—15.71	21 27 3.58	+ 0.48
	22	κ Capricorni. . .	S.	37.0	39.8	41.5	48.0	50.0	52.2	58.7	0.3	3.1	35 50.07	— 1.19	. .	—15.71	21 35 33.17	— 2.57
	23	δ Capricorni. . .	S.	. .	. .	. .	18.0	20.0	22.0	26.3	28.0	30.8	40 17.87	— 1.11	. .	—15.71	21 40 1.05	— 2.53
	24	B. A. C. 7620 . .	S.	52.0	54.6	56.2	2.4	4.5	6.6	12.9	14.5	17.0	47 4.52	— 0.99	. .	—15.71	21 46 47.82	— 2.47
	25	29^1 Aquarii . . .	S.	32.7	35.5	37.0	. .	. .	. .	54.1	55.7	58.4	55 45.57	— 1.14	. .	—15.71	21 55 28.72	— 2.56
	26	29^2 Aquarii . . .	S.	. .	. .	41.4	43.6	45.9	48.0	50.2	. .	. .	55 45.82	— 1.14	. .	—15.71	21 55 28.97	— 2.56
	27	Anonymous . .	S.	55.8	57.4	1.4	. .	5.6	7.7	9.8	13.9	18.0	16 5.62	— 0.93	. .	—15.72	22 15 48.97	— 2.47
	28	Anonymous . .	S.	20.2	22.9	24.2	30.5	32.7	34.8	40.9	42.5	45.0	21 32.63	— 0.91	. .	—15.72	22 21 16.00	— 2.47
	29	κ Aquarii . . .	S.	14.5	18.6	22.6	24.7	26.7	28.7	30.8	34.9	39.0	31 26.72	— 1.08	. .	—15.72	22 31 9.92	— 2.45
	30	67 Aquarii . . .	S.	40.0	42.7	44.2	50.4	52.4	54.4	0.6	2.2	4.7	36 52.40	— 0.92	. .	—15.72	22 36 35.76	— 2.47
	31	λ Aquarii . . .	S.	. .	. .	11.3	13.3	15.4	17.4	19.5	. .	. .	46 15.38	— 0.94	. .	—15.72	22 45 58.72	+ 0.14
	32	α Piscis Australis .	S.	40.3	43.4	45.0	52.0	54.5	57.0	4.0	5.8	8.5	50 54.50	— 1.49	—15.70	—15.72	22 50 37.29	+ 0.02
	33	α Pegasi	S.	29.0	31.9	33.3	39.6	41.9	44.0	50.2	51.9	54.6	58 41.82	— 0.68	—15.60	—15.72	22 58 25.42	— 0.09
14	34	Anonymous . .	F.	32.5	35.9	37.7	45.7	48.2	51.0	59.1	1.0	4.3	28 48.38	— 1.82	. .	—16.97	19 28 29.59	— 2.55
	35	γ Aquilæ. . . .	F.	17.3	19.9	21.5	27.6	29.7	31.8	38.0	39.5	42.2	40 29.72	— 0.47	—16.98	—16.98	19 40 12.27	+ 0.03
	36	O. Arg. S. 20024 .	F.	4.2	6.8	8.4	15.3	17.6	19.9	26.7	28.6	31.3	43 17.64	— 1.39	. .	—16.98	19 44 59.27	— 2.32
	37	λ Ursæ Minoris. .	F.	. .	. .	. .	. .	39.0	28.0	18.0	. .	. .	51 39.23	. .	. .	. .	. . . .	. .
	38	B. A. C. 6992 . .	F.	42.5	45.3	46.8	51.0	53.1	55.3	. .	. .	. .	13 55.26	— 1.06	. .	—16.98	20 13 37.22	— 2.24
	39	β Capricorni. . .	F.	56.6	59.3	0.9	7.3	9.4	11.5	17.8	19.3	22.0	14 9.34	— 1.06	. .	—16.98	20 13 51.30	— 2.24
	40	π Capricorni. . .	F.	7.2	9.8	11.4	17.9	20.0	22.0	28.7	30.2	32.9	20 20.01	— 1.15	—16.97	—16.98	20 20 1.88	+ 0.02
	41	B. A. C. 7077 . .	F.	21.9	25.0	26.5	33.3	35.7	38.0	44.8	46.6	49.4	25 35.69	— 1.33	. .	—16.98	20 25 17.38	— 2.47
	42	ε Delphini . . .	F.	12.7	15.4	16.9	23.3	25.3	27.4	33.7	35.2	38.0	27 25.32	— 0.46	—16.99	—16.98	20 27 7.88	+ 0.06
	43	17 Capricorni. . .	F.	52.0	54.8	56.4	3.1	5.3	7.6	14.0	15.8	18.5	39 5.28	— 1.24	. .	—16.99	20 38 47.05	— 2.46
	44	19 Capricorni. . .	F.	41.4	44.0	45.7	52.1	54.3	56.5	2.9	4.5	7.2	47 54.29	— 1.15	. .	—16.99	20 47 36.15	— 2.43
	45	η Capricorni. . .	F.	14.7	17.4	19.0	25.5	27.7	30.0	36.5	38.1	40.9	57 27.76	— 1.19	. .	—16.99	20 57 9.58	— 2.49
	46	χ Capricorni. . .	F.	21.2	23.9	25.5	32.1	34.3	36.5	43.0	44.8	47.4	1 34.30	— 1.23	. .	—16.99	21 1 16.08	— 2.53
	47	ζ Cygni . . .	F.	34.2	37.3	38.9	46.0	48.4	50.8	57.8	59.4	2.4	7 48.36	+ 0.02	—16.97	—16.99	21 7 31.39	— 0.01
	48	34 Vulpeculæ. . .	F.	. .	32.0	34.2	36.4	38.6	40.9	45.3	47.1	49.8	15 36.43	— 0.15	. .	—16.99	21 15 19.29	— 2.11
	49	B. A. C. 7430 . .	F.	. .	. .	29.8	34.0	38.0	42.3	50.6	53.6	59.7	17 34.01	+ 1.50	. .	—16.99	21 17 18.52	— 2.37
	50	ε Pegasi	F.	1.3	3.9	5.5	11.6	13.7	15.8	22.0	23.5	26.2	38 13.72	— 0.49	—16.98	—17.00	21 37 56.23	— 0.01

15. Bisections at sets B and D.
28. N. P. D. probably one revolution, $= 15''.4$, too small.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETERS. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	305 28	3.4	0.5	17.7	24.1	34	. .	823	. .	837	. .	52.4	54 27 31.1	. .	+ 1 20.0	105 35 12.3	+ 6.1
2	356 2	4.7	5.5	24.1	27.5	34	. .	190	. .	230	. .	52.4	3 53 25.9	. .	+ 3.9	54 59 51.0	+13.6
3	354 56	6.0	4.9	24.0	27.2	32	. .	695	. .	735	. .	52.4	4 59 1.5	. .	+ 5.0	56 5 27.7	+13.5
4	320 6	9.5	5.5	23.8	29.7	32	. .	726	. .	750	. .	52.4	39 49 4.7	810	+ 47.9	90 56 13.8	− 0.1
5	307 36	10.8	7.5	24.6	1.0	37	. .	476	. .	490	. .	52.4	52 20 18.9	. .	+ 1 14.3	103 27 54.4	+14.5
6	312 58	6.1	3.1	21.0	26.8	40	. .	. .	. .	670	. .	52.4	46 59 3.7	. .	+ 1 1.5	98 6 26.4	+12.4
7	312 58	6.1	3.1	21.0	26.8	38	. .	. .	. .	442	. .	52.4	46 58 29.4	. .	+ 1 1.5	98 5 52.1	+12.4
8	313 46	10.3	9.4	27.1	2.1	35	. .	. .	. .	628	. .	52.4	46 9 51.7	. .	+ 59.8	97 17 12.7	+14.6
9	320 16	10.5	8.7	27.0	2.8	32	. .	990	. .	022	. .	52.4	39 39 11.5	812	+ 47.6	90 46 20.3	− 1.5
10	309 50	4.7	0.9	18.8	25.0	37	. .	030	. .	100	. .	52.4	50 6 6.4	. .	+ 1 8.8	101 13 36.4	+15.2
11	290 46	13.6	10.9	27.5	4.4	31	788	695	. .	780	751	52.4	69 8 53.9	. .	+ 2 30.1	120 17 45.2	− 1.0
12	335 34	4.4	3.1	21.5	25.4	36	. .	352	. .	356	. .	52.4	24 21 56.9	823	+ 26.1	75 28 44.2	− 0.1
13	353 12	7.0	3.8	21.4	28.8	34	730	. .	. .	. .	670	52.4	6 43 33.5	802	+ 6.8	57 50 1.5	
14	353 12	7.0	3.8	21.4	28.8	34	. .	300	. .	440	. .	52.4	6 43 28.2	. .	+ 6.8	57 49 56.2	− 3.7
15	326 36	6.9	2.9	22.2	0.9	35	600	. .	. .	. .	676	52.4	33 19 47.9	. .	+ 37.7	84 26 46.8	− 3.1
16	349 22	6.9	1.4	21.0	27.8	34	. .	214	. .	260	. .	52.4	10 33 25.1	795	+ 10.7	61 39 57.0	− 2.2
17																	
18																	
19																	
20																	
21																	
22	301 38	8.4	. .	23.1	. .	39	. .	018	. .	968	. .	52.3	58 18 54.7	660	+ 1 29.7	109 26 45.6	+11.6
23	304 22	10.7	. .	27.2	. .	38	. .	386	. .	432	. .	52.3	55 34 33.6	. .	+ 1 20.8	106 42 15.6	+12.1
24	310 8	9.4	. .	25.4	. .	33	. .	060	. .	080	. .	52.3	49 47 10.0	. .	+ 1 5.6	100 54 36.8	+13.2
25	303 28	7.6	. .	23.5	. .	32	208	. .	. .	. .	208	52.3	56 26 54.8	660	+ 1 23.5	107 34 39.5	+12.8
26	303 28	7.6	. .	23.5	. .	32	. .	066	. .	060	. .	52.3	56 26 52.7	. .	+ 1 23.5	107 34 37.4	+12.8
27	312 58	7.5	. .	24.1	. .	38	. .	. .	. .	550	530	52.3	46 58 32.4	. .	+ 59.5	98 5 53.1	+14.5
28	313 46	0.8	. .	15.1	. .	35	. .	514	. .	530	. .	52.3	46 9 38.2	. .	+ 57.9	97 16 57.3	+14.6
29	316 10	10.8	. .	27.4	. .	35	. .	412	. .	484	. .	52.3	43 45 48.2	. .	+ 53.3	94 53 2.7	+15.2
30	313 26	12.9	. .	29.6	. .	37	. .	588	. .	582	. .	52.3	46 30 23.2	. .	+ 58.6	97 37 43.0	+15.2
31	312 48	10.9	. .	25.8	. .	36	378	. .	. .	. .	338	52.3	47 8 1.5	. .	+ 1 0.0	98 15 22.7	+15.4
32	290 46	13.1	. .	28.7	. .	32	. .	310	. .	330	. .	52.3	69 9 1.9	. .	+ 2 25.1	120 17 48.2	+ 1.6
33	335 34	9.7	. .	26.5	. .	36	. .	. .	. .	. .	200	52.3	24 21 59.0	680	+ 25.3	75 28 45.5	+ 2.6
34	281 6	2.7	0.1	15.7	24.5	38	. .	. .	. .	008	980	59.4	78 50 41.0	804	+ 4 44.6	130 1 46.8	− 5.1
35	331 20	0.2	28.1	16.3	21.8	31	. .	742	. .	754	. .	59.4	28 34 48.6	. .	+ 31.5	79 41 41.3	+ 3.1
36	293 52	5.3	2.1	20.4	28.6	37	. .	810	. .	792	. .	59.4	66 4 26.3	. .	+ 2 9.4	117 12 56.9	− 0.2
37																	
38	305 52	7.1	3.0	20.9	28.0	33	. .	974	. .	. .	. .	59.4	54 3 28.3	. .	+ 1 19.5	105 11 9.0	+ 5.0
39	305 52	7.1	3.0	20.9	28.0	33	. .	. .	. .	298	302	59.4	54 3 17.8	. .	+ 1 19.5	105 10 58.5	+ 5.0
40	302 26	5.4	2.7	20.1	27.7	35	. .	550	. .	536	. .	59.4	57 29 51.5	. .	+ 1 30.4	108 37 43.1	+ 2.6
41	295 42	1.8	29.5	16.8	24.4	36	. .	. .	. .	660	664	59.4	64 14 5.2	814	+ 1 59.1	115 22 25.5	+ 0.9
42	331 54	4.4	1.7	19.9	26.9	31	. .	. .	. .	340	348	59.4	28 0 46.5	. .	+ 30.7	79 7 38.4	+ 1.9
43	299 6	6.8	3.7	21.5	29.7	38	. .	110	. .	106	. .	59.4	60 50 32.4	. .	+ 1 43.1	111 58 36.7	+ 4.6
44	302 40	12.1	8.7	26.2	4.4	37	. .	578	. .	578	. .	59.4	57 16 29.2	. .	+ 1 29.7	108 24 20.1	+ 6.0
45	300 42	9.1	5.3	21.5	0.3	34	. .	106	. .	082	. .	59.4	59 13 31.8	. .	+ 1 36.8	110 21 29.8	+ 6.2
46	299 22	16.7	14.2	0.9	9.4	36	. .	348	. .	336	. .	59.4	60 34 15.1	818	+ 1 42.1	111 42 18.4	+ 6.1
47	350 44	5.4	2.9	21.4	26.0	32	. .	470	. .	480	. .	59.4	9 11 4.7	. .	+ 9.4	60 17 35.3	+ 1.8
48	344 22	6.3	5.0	22.1	28.0	36	. .	. .	. .	298	294	59.4	15 34 4.8	. .	+ 16.1	66 40 42.1	+14.7
49	21 14	8.7	5.7	24.3	29.6	31	. .	. .	. .	942	954	59.4	338 41 0.4	. .	− 22.6	29 46 59.0	+16.7
50	330 20	9 29.7	27.3	15.8	22.2	34	. .	600	. .	560	. .	59.4	29 35 31.7	. .	+ 32.9	80 42 25.8	+ 1.3

No.	Barom.	At. Ther.	Ex. Ther.
	in.	″	″
34	. .	. .	57.0
43	30.174	65.0	57.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Sept. 14	1	μ Capricorni	F.	27.0	29.6	31.1	37.5	39.6	41.7	48.0	49.4	51.2	46 39.57	— 1.04	—17.03	—17.00	21 46 21.53	+ 0.06
	2	Moon I, S.	F.	32.9	35.8	37.3	43.9	46.2	48.4	55.0	56.7	59.5	50 46.19	— 1.16	. .	—17.00	21 50 28.03	+72.51
	3	θ Aquarii	F.	12.9	15.4	16.8	23.0	25.1	27.2	33.3	34.7	37.3	10 25.08	— 0.89	—17.00	—17.00	22 10 7.19	+ 0.02
	4	Anonymous	F.	54.4	57.0	58.6	2.6	6.9	11.0	15.0	16.5	19.0	16 6.78	— 0.89	. .	—17.00	22 15 48.89	— 2.49
	5	Anonymous	F.	21.7	24.0	25.7	29.7	33.9	38.0	42.0	43.7	46.3	21 33.89	— 0.87	. .	—17.00	22 21 16.02	— 2.49
15	6	α Leonis	S.	38.9	41.5	43.2	49.4	51.5	53.6	59.9	1.4	4.0	1 51.49	— 0.55	—17.59	—17.56	10 1 33.38	— 0.01
	7	γ^1 Leonis	S.	59.8	2.6	4.1	. .	. .	. .	. .	. .	. .	13 12.89	— 0.35	—17.63	—17.56	10 12 54.98	+ 0.05
	8	γ^2 Leonis	S.	. .	. .	8.7	10.9	13.1	15.3	17.5	. .	. .	13 13.10	— 0.35	. .	—17.56	10 12 55.19	. .
16	9	Polaris, S. P.	S.	. .	. .	44.0	18.5	55.0	28.0	4.5	. .	. .	13 54.00	. .	. .	. .	. . . .	. .
	10	α Virginis	S.	33.3	36.0	37.6	43.7	45.9	47.9	54.1	55.6	58.2	18 45.81	— 1.12	—17.51	—17.57	13 18 27.12	— 0.08
	11	η Bootis	S.	40.5	43.1	44.8	51.2	53.4	55.6	2.1	3.6	6.4	48 53.41	— 0.40	—17.49	—17.58	13 48 35.43	— 0.14
	12	α Bootis	S.	54.5	57.0	58.8	5.3	7.5	9.7	16.1	17.8	20.4	10 7.46	— 0.38	—17.55	—17.58	14 9 49.50	— 0.03
	13	α Scorpii	S.	. .	. .	49.2	51.5	53.9	56.1	58.3	. .	. .	21 53.80	— 1.54	—17.55	—17.59	16 21 34.67	— 0.05
	14	ζ Ophiuchi	S.	13.9	16.4	18.0	24.2	26.3	28.4	34.5	36.1	38.7	30 26.28	— 1.12	—17.48	—17.59	16 30 7.57	— 0.11
	15	η Herculis	S.	32.6	35.9	37.9	45.7	48.4	51.2	59.0	0.8	4.2	38 48.41	+ 0.16	—17.56	—17.59	16 38 30.98	— 0.02
	16	γ Aquilæ	S.	. .	. .	. .	. .	. .	. .	38.9	40.3	43.0	40 30.53	— 0.53	—17.76	—17.59	19 40 12.41	+ 0.20
	17	α Aquilæ	S.	40.0	42.5	44.0	50.3	52.4	54.4	0.7	2.2	4.8	44 52.37	— 0.58	—17.67	—17.59	19 44 34.20	+ 0.12
	18	λ Ursæ Minoris	S.	. .	. .	. .	. .	13.0	. .	50.5	13.0	28.5	51 34.20	. .	. .	—17.59	19 52 24.48	. .
	19	B. A. C. 6933	S.	. .	. .	. .	. .	. .	41.8	46.1	47.7	50.5	4 37.39	— 0.27	. .	—17.61	20 4 19.51	— 1.81
	20	B. A. C. 7049	S.	8.6	11.4	13.0	19.7	21.9	24.0	30.8	32.5	35.2	22 21.90	— 1.38	. .	—17.61	20 22 2.91	— 2.39
	21	τ^1 Capricorni	S.	. .	. .	27.3	29.3	31.4	33.5	35.7	. .	. .	30 31.44	— 1.18	. .	—17.62	20 30 12.64	— 2.30
	22	B. A. C. 7198	S.	23.6	27.4	29.6	38.6	41.7	44.7	53.7	55.9	59.6	40 41.64	+ 0.67	. .	—17.62	20 40 24.69	— 1.98
	23	19 Capricorni	S.	41.8	44.8	46.4	52.9	55.0	57.1	3.6	5.3	7.9	47 54.98	— 1.25	. .	—17.62	20 47 36.11	— 2.41
	24	9 Aquarii	S.	13.3	16.2	17.7	23.9	26.0	28.2	34.5	36.1	38.6	54 26.06	— 1.14	. .	—17.62	20 54 7.30	— 2.36
	25	θ Capricorni	S.	. .	55.9	57.7	1.9	4.1	8.5	10.6	14.8	16.5	59 6.25	— 1.24	. .	—17.62	20 58 47.39	— 2.44
	26	ξ Aquarii	S.	4.8	7.3	9.0	15.2	17.2	19.3	25.4	27.0	29.6	31 17.20	— 0.99	—17.62	—17.62	21 30 58.58	+ 0.01
	27	ε Pegasi	S.	2.0	4.6	6.2	12.4	14.4	16.5	22.7	24.3	26.9	38 14.44	— 0.56	—17.64	—17.62	21 37 56.26	+ 0.03
	28	α Canis Minoris	S.	42.5	45.2	46.7	52.8	54.9	56.9	3.0	4.6	7.2	32 54.87	— 0.65	—17.60	—17.53	7 32 36.69	— 0.09
	29	β Geminorum	S.	. .	. .	. .	. .	. .	. .	56.5	58.3	1.2	37 47.26	— 0.06	—17.54	—17.53	7 37 29.67	— 0.02
17	30	Polaris, S. P.	S.	. .	. .	45.0	19.0	51.0	29.0	2.0	. .	. .	13 53.20	. .	. .	. .	. . . .	. .
	31	α Virginis	S.	33.3	35.9	37.5	43.7	45.9	47.9	24.2	25.6	28.2	19 45.80	— 1.15	—17.47	—17.52	13 19 27.13	— 0.07
	32	η Ursæ Majoris	S.	27.1	31.2	33.5	43.1	46.3	49.5	59.0	1.2	5.2	42 46.23	+ 0.67	. .	—17.52	13 42 29.38	+ 0.06
	33	η Bootis	S.	. .	. .	49.0	51.2	53.3	55.6	57.8	. .	. .	48 53.38	— 0.42	—17.45	—17.52	13 48 35.44	— 0.12
18	34	Saturn I, N.	F.	37.5	40.2	41.8	. .	. .	. .	59.5	1.2	3.9	3 50.68	— 1.42	. .	—17.54	19 3 31.72	. .
	35	Saturn II, S.	F.	. .	. .	47.6	49.8	52.0	54.3	56.4	. .	. .	3 52.02	— 1.42	. .	—17.54	19 3 33.06	. .
	36	δ Aquilæ	F.	10.5	13.2	14.6	20.7	22.8	24.8	30.9	32.3	35.0	19 22.76	— 0.78	—17.60	—17.54	19 19 4.44	+ 0.11
	37	α Aquilæ	F.	39.7	42.5	44.0	50.2	52.3	54.2	0.4	2.0	4.6	44 52.21	— 0.65	—17.46	—17.54	19 44 34.02	— 0.04
	38	β Aquilæ	F.	9.5	12.0	13.4	19.6	21.6	23.6	29.8	31.5	34.0	49 21.67	— 0.70	—17.60	—17.54	19 46 3.43	+ 0.09
	39	λ Ursæ Minoris	F.	. .	. .	. .	. .	34.0	22.0	12.0	. .	. .	51 33.57	. .	. .	. .	. . . .	. .
	40	Anonymous	F.	20.5	23.3	24.9	. .	. .	. .	42.4	43.9	46.8	4 33.63	— 0.35	. .	—17.54	20 4 15.74	— 1.78
	41	B. A. C. 6933	F.	. .	. .	33.0	35.2	37.4	39.5	41.7	. .	. .	4 37.36	— 0.35	. .	—17.54	20 4 19.47	— 1.78
	42	Polaris	F.	. .	. .	19.0	44.0	9.0	33.5	59.0	. .	. .	12 8.90	. .	. .	. .	. . . .	. .
	43	θ^1 Ceti	F.	46.1	48.7	50.3	56.5	58.5	0.6	6.8	8.3	11.0	17 58.53	— 1.06	—17.50	—17.54	1 17 39.93	— 0.02
	44	Moon II	F.	52.2	54.9	56.4	2.6	4.8	6.9	13.0	14.7	17.3	36 4.76	— 0.70	. .	—17.54	1 35 46.52	—66.67
	45	Neptune	F.	. .	. .	. .	. .	. .	. .	. .	. .	16.4	38 4.04	— 0.65	. .	—17.54	1 37 45.85	. .
	46	β Arietis	F.	41.6	44.4	46.0	52.5	54.8	56.9	3.3	4.9	7.7	47 54.68	— 0.35	—17.58	—17.54	1 47 36.79	+ 0.06
	47	α Arietis	F.	4.6	7.3	9.0	15.7	17.9	20.0	26.8	28.5	31.2	0 17.89	— 0.29	—17.51	—17.54	2 0 0.06	— 0.02
19	48	λ Ursæ Minoris	F.	. .	. .	. .	. .	. .	. .	50.0	13.0	24.0	51 32.20	. .	. .	. .	. . . .	. .
	49	Anonymous	F.	11.8	14.4	15.8	22.2	24.3	26.6	32.7	34.2	37.0	5 24.33	— 1.12	. .	—17.58	20 5 5.63	— 2.13
	50	α^2 Capricorni	F.	5.2	8.0	9.4	15.9	18.0	20.1	26.2	27.9	30.5	11 17.91	— 1.09	—17.62	—17.58	20 10 59.24	+ 0.08

2. Bisections at wires II–VI.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	306 54	3.2	0.4	17.6	26.6	33	900	888	. .	. .	. .	59.4	53 1 24.2	. .	+ 1 16.8	104 9 2.2	+ 3.0
2	301 44	1.3	27.1	15.8	23.2	33	374	288	100	868	700	59.4	58 11 8.9	. .	+ 1 33.1	109 19 3.2	
3	312 38	7.1	4.0	22.4	29.4	34	. .	456	. .	422	. .	59.4	47 17 36.4	. .	+ 1 2.7	98 25 0.3	+ 2.1
4	312 58	9.4	6.8	25.6	3.3	37	. .	. .	. .	800	808	59.4	46 58 31.1	. .	+ 1 2.0	98 5 54.3	+12.5
5	313 46	8.1	5.0	23.8	0.7	35	. .	486	. .	490	. .	59.4	46 9 53.7	842	+ 1 0.4	97 17 15.3	+12.8
6	333 38	28.5	25.8	14.4	21.1	35	. .	280	. .	250	. .	57.1	26 17 38.7	728	+ 27.9	77 24 27.8	+ 0.9
7	341 32	2.1	29.4	17.8	25.5	36	. .	. .	. .	. .	658	57.1	18 24 4.0	728	+ 18.8	69 30 44.0	+ 2.1
8																	
9	52 24	1.2	0.6	19.7	26.3	38	. .	. .	380	. .	390	55.0	307 32 28.8	. .	− 1 12.7	358 37 37.3	− 0.8
10	310 34	3.7	0.0	18.2	26.7	37	. .	. .	. .	058	006	55.0	49 22 8.2	684	+ 1 5.1	100 29 34.5	+ 0.1
11	340 4	3.6	29.6	19.8	25.9	32	. .	084	. .	112	. .	55.0	19 50 52.8	. .	+ 20.1	70 57 34.1	+ 2.0
12	340 54	1.0	27.6	18.0	22.8	37	. .	910	. .	940	. .	55.0	19 2 19.9	682	+ 19.3	70 9 0.4	+ 2.3
13																	
14	310 46	7.3	2.1	24.5	28.6	40	. .	075	. .	085	. .	55.0	49 10 58.6	687	+ 1 4.7	100 18 24.5	+ 3.2
15	0 12	0.9	28.3	19.0	22.3	34	. .	490	. .	488	. .	55.0	359 43 27.5	. .	− .3	50 49 48.4	+ 1.9
16																	
17	329 34	3.7	1.8	20.1	25.0	32	. .	496	. .	506	. .	55.1	30 20 59.4	. .	+ 33.4	81 27 54.0	+ 0.1
18	49 56	6.6	5.5	25.9	29.7	32	. .	. .	. .	815	773	55.1	309 59 8.3	. .	− 1 7.9	1 4 21.6	+ 0.3
19	341 34	29.7	27.4	14.9	19.5	32	. .	. .	. .	559	581	55.1	18 20 55.7	770	+ 18.9	69 27 35.8	+13.4
20	298 16	7.2	4.5	21.3	28.7	38	. .	. .	. .	860	882	55.1	61 40 39.6	. .	+ 1 45.6	112 48 46.4	+ 3.3
21	305 28	6.4	2.4	18.6	27.6	34	. .	. .	. .	570	580	55.1	54 27 32.0	. .	+ 1 19.8	105 35 13.0	+ 5.7
22	7 52	4.6	3.2	21.0	25.9	34	. .	. .	. .	419	355	55.1	352 3 29.8	778	− 8.0	43 9 43.0	+17.0
23	302 40	7.6	3.1	21.3	28.7	38	. .	003	. .	035	. .	55.1	57 16 26.5	. .	+ 1 28.8	108 24 16.5	+ 3.9
24	307 02	1.0	27.2	14.5	23.2	36	. .	650	. .	670	. .	55.1	52 53 59.4	. .	+ 1 15.5	104 1 36.1	+ 5.1
25	303 20	2.1	28.9	16.5	23.9	38	. .	. .	. .	411	410	55.1	56 36 27.5	783	+ 1 26.6	107 44 15.3	+ 6.8
26	312 38	2.4	29.3	17.5	24.1	36	. .	712	. .	760	. .	55.1	47 18 2.5	. .	+ 1 2.1	98 25 25.8	− 0.1
27	330 20	3.5	0.1	17.6	23.7	34	. .	654	. .	600	. .	55.1	29 35 30.6	790	+ 32.6	80 42 24.4	0.0
28																	
29																	
30																	
31																	
32																	
33																	
34	298 32	0.8	26.6	16.1	23.3	37	. .	590	. .	728	. .	55.5	61 24 15.4	. .	+ 1 43.3	112 32 19.9	
35	298 32	0.8	26.6	16.1	23.3	38	916	. .	. .	. .	912	55.5	61 24 34.6	726	+ 1 43.3	112 32 39.1	
36	323 54	15.6	12.5	28.8	8.6	32	. .	380	. .	408	. .	55.5	36 1 9.4	. .	+ 41.1	87 8 11.7	+ 1.8
37	329 34	3.8	29.5	15.3	24.8	32	. .	672	. .	654	. .	55.5	30 21 0.5	. .	+ 33.2	81 27 54.9	+ 1.1
38	327 8	9.3	5.5	25.0	1.8	34	530	480	. .	. .	. .	55.5	32 47 35.9	. .	+ 36.5	83 54 33.6	+ 3.3
39																	
40	341 34	9 29.8	26.6	15.1	21.3	36	050	058	. .	. .	. .	55.5	18 21 50.2	734	+ 18.8	69 28 30.2	+13.6
41	341 34	29.8	26.6	15.1	21.3	32	. .	. .	. .	650	658	55.5	18 20 57.8	. .	+ 18.8	69 27 37.8	+13.6
42	49 38	4.2	2.5	21.5	27.6	32	774	780	780	820	820	56.1	310 17 6.4	. .	− 1 7.1	1 22 20.5	− 0.6
43	312 12	4.3	0.5	18.2	21.7	32	. .	500	. .	520	. .	56.1	47 42 59.0	. .	+ 1 2.5	98 50 22.7	+ 1.7
44																	
45	329 20	3.5	28.3	16.6	23.9	37	. .	. .	. .	470	470	56.1	30 36 14.6	. .	+ 33.7	81 43 9.5	− 1.2
46	341 14	9 29.3	25.5	13.5	19.2	37	. .	676	. .	676	. .	56.1	18 42 14.2	760	+ 19.3	69 48 54.7	+ 1.8
47	343 54	9 29.2	26.4	13.8	20.9	36	. .	984	. .	988	. .	56.1	16 1 49.0	758	+ 16.4	67 8 26.6	+ 1.4
48																	
49	307 0	8.5	5.0	23.2	1.2	39	. .	020	. .	116	. .	55.7	52 56 45.0	768	+ 1 15.4	104 4 21.6	+ 4.7
50	308 6	5.7	1.8	19.2	29.2	31	. .	416	. .	410	. .	55.7	51 48 44.5	. .	+ 1 12.4	102 56 18.1	+ 1.2

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
5	. .	. .	54.8
35	. .	. .	62.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ″
2	−51 15.7	− 16 31.0	. .	−1 7 46.7
34	− 0.8	+ 9.6	. .	+ 8.8
35	− 0.8	− 9.6	. .	− 10.4
45	− 0.2	. .	. .	− 0.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Sept. 19	1	π Capricorni. . .	F.	7.5	10.3	12.0	18.5	20.7	22.9	29.2	30.9	33.5	20 20.61	— 1.24	—17.53	—17.58	20 20 1.79	— 0.02
	2	O. Arg. S. 20533 .	F.	41.7	44.3	45.9	52.5	54.8	56.9	3.5	5.0	7.9	21 54.72	— 1.32	. .	—17.58	20 21 35.82	— 2.32
	3	B. A. C. 7083 . .	F.	47.2	50.8	52.9	1.7	4.6	7.5	16.3	18.4	22.0	26 4.60	+ 0.57	. .	—17.58	20 25 47.59	— 1.76
	4	B. A. C. 7198 . .	F.	23.6	27.4	29.5	38.5	41.6	44.4	53.4	55.6	59.4	40 41.49	+ 0.62	. .	—17.58	20 40 24.53	— 1.86
	5	B. A. C. 7237 . .	F.	. .	. .	47.5	49.7	52.0	54.2	56.4	. .	. .	45 51.96	— 1.40	. .	—17.58	20 45 32.98	— 2.48
	6	9 Aquarii . . .	F.	13.4	16.3	17.6	23.9	26.1	28.2	34.5	36.0	38.6	54 26.07	— 1.12	. .	—17.58	20 54 27.37	— 2.33
	7	η Capricorni . .	F.	15.2	18.0	19.7	26.0	28.3	30.5	37.1	38.7	41.3	57 28.31	— 1.29	. .	—17.58	20 57 9.44	— 2.45
	8	ζ Cygni	F.	34.8	37.9	39.6	46.8	49.0	51.3	58.5	0.2	3.2	7 49.03	— 0.03	—17.64	—17.58	21 7 31.42	+ 0.07
	9	α Aquarii . . .	F.	21.0	23.7	25.0	31.2	33.3	35.4	40.5	43.0	45.6	59 33.30	— 0.80	—17.58	—17.58	21 59 14.92	+ 0.03
	10	θ Aquarii . . .	F.	13.4	16.0	17.5	23.7	25.7	27.7	34.0	35.5	38.0	10 25.72	— 0.98	—17.57	—17.58	22 10 7.16	+ 0.01
	11	π Aquarii . . .	F.	52.9	55.4	57.0	3.0	5.1	7.2	13.2	14.9	17.3	19 5.11	— 0.76	—17.55	—17.58	22 18 46.77	— 0.01
	12	Anonymous . .	F.	22.2	24.7	26.2	32.4	34.5	36.5	42.7	44.4	46.9	21 34.50	— 0.95	. .	—17.58	22 21 15.97	— 2.48
	13	θ Ursæ Majoris .	S.	. .	. .	27.4	30.7	33.9	37.3	40.6	. .	. .	24 33.98	+ 0.80	. .	—17.39	9 24 17.39	+ 0.19
	14	ε Leonis	S.	39.3	42.3	43.8	50.7	53.0	55.2	1.7	3.5	6.3	38 52.87	— 0.20	—17.36	—17.39	9 38 35.22	— 0.09
	15	α Leonis	S.	38.8	41.4	43.0	49.4	51.5	53.5	59.7	1.2	3.9	1 51.38	— 0.50	—17.40	—17.38	10 1 33.44	— 0.02
	16	γ^1 Leonis	S.	59.7	2.5	4.0	. .	. .	. .	21.5	23.0	. .	13 12.76	— 0.36	—17.42	—17.38	10 13 55.02	+ 0.02
	17	γ^2 Leonis	S.	. .	. .	8.8	10.9	13.0	15.2	17.4	. .	. .	13 13.06	— 0.36	. .	—17.38	10 12 55.32	. .
20	18	Sun I, N. . . .	S.	42.9	45.5	47.0	53.2	55.2	57.2	3.5	4.9	7.5	51 55.21	— 0.84	. .	—17.38	11 51 36.99	. .
	19	Sun II, S. . . .	S.	50.9	53.4	55.0	1.2	3.2	5.3	11.5	13.0	15.4	54 3.21	— 0.84	. .	—17.38	11 53 44.99	. .
	20	Polaris, S P. . .	S.	. .	. .	40.0	19.0	52.0	27.0	5.0	. .	. .	13 52.60	. .	. .	. .	. . . .	. .
	21	η Ursæ Majoris . .	S.	27.0	30.9	33.3	43.0	46.0	49.3	58.9	1.2	5.0	42 46.07	+ 0.66	. .	—17.37	13 42 29.36	+ 0.07
	22	η Bootis	S.	40.3	43.0	44.6	51.0	53.3	55.5	1.9	3.5	6.2	48 53.26	— 0.41	—17.36	—17.37	13 48 35.48	— 0.06
21	23	Saturn I, S. . .	S.	40.0	42.7	44.4	. .	. .	. .	2.0	3.5	6.5	3 53.18	— 1.41	. .	—17.35	19 3 34.42	. .
	24	Saturn II, N. . .	S.	. .	. .	50.1	52.2	54.4	56.7	58.8	. .	. .	3 54.44	— 1.41	. .	—17.35	19 3 35.68	. .
	25	γ Aquilæ . . .	S.	17.6	20.3	21.9	28.1	30.1	32.2	38.5	40.0	42.6	40 30.14	— 0.63	—17.34	—17.35	19 40 12.16	+ 0.02
	26	α Aquilæ . . .	S.	39.6	42.3	43.7	50.0	52.1	54.2	0.3	1.8	4.5	44 52.06	— 0.67	—17.34	—17.35	19 44 34.04	+ 0.03
	27	β Aquilæ . . .	S.	9.0	11.7	13.3	19.4	21.4	23.4	29.7	31.2	33.7	49 21.42	— 0.72	—17.37	—17.35	19 49 3.35	+ 0.05
	28	λ Ursæ Minoris. .	S.	. .	. .	. .	. .	22.0	17.0	52.5	13.0	31.0	51 35.42	. .	. .	. .	. . . .	. .
	29	B. A. C. 7049 . .	S.	8.4	11.1	12.7	19.3	21.6	23.9	30.5	32.2	35.0	22 21.63	— 1.42	. .	—17.35	20 22 2.86	— 2.32
	30	B. A. C. 7083 . .	S.	47.0	50.7	53.0	1.5	4.5	7.4	16.3	18.5	22.0	26 4.54	+ 0.39	. .	—17.35	20 25 47.58	— 1.72
23	31	α^1 Geminorum . .	S.	29.3	32.5	34.3	. .	. .	. .	53.6	55.4	58.4	26 43.92	0.00	. .	—17.27	7 26 26.65	. .
	32	α^2 Geminorum . .	S.	. .	. .	39.3	41.9	44.3	46.6	49.0	. .	. .	26 44.22	0.00	—17.30	—17.27	7 26 26.95	+ 0.27
	33	α Canis Minoris .	S.	. .	. .	50.7	52.8	54.8	56.9	58.9	. .	. .	32 54.82	— 0.65	—17.36	—17.27	7 32 36.90	— 0.07
	34	β Geminorum . .	S.	33.4	36.3	38.0	45.0	47.3	49.6	56.6	58.4	1.2	37 47.31	— 0.11	—17.33	—17.27	7 37 25.93	+ 0.03
	35	α Leonis	S.	38.7	41.4	43.0	49.2	51.2	53.3	59.6	1.2	3.9	1 51.28	— 0.60	—17.19	—17.27	10 1 33.41	— 0.12
	36	γ^1 Leonis	S.	59.6	2.6	4.0	. .	. .	. .	21.3	23.0	25.8	13 12.72	— 0.43	—17.24	—17.27	10 12 55.02	— 0.05
	37	γ^2 Leonis	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
24	38	Polaris, S. P. . .	S.	. .	. .	41.5	13.0	50.0	27.5	58.0	. .	. .	13 50.00	. .	. .	. .	. . . .	. .
	39	α Virginis . . .	S.	33.0	35.6	37.2	43.4	45.5	47.6	53.8	55.3	57.8	18 45.47	— 1.10	—17.20	—17.28	13 18 27.09	— 0.10
	40	γ Aquilæ . . .	S.	. .	25.9	28.0	30.0	32.0	34.2	38.3	39.9	42.4	40 30.01	— 0.57	—17.32	—17.30	19 40 12.14	+ 0.05
	41	α Aquilæ . . .	S.	39.5	42.1	43.8	49.9	51.9	54.0	0.2	1.7	4.3	44 51.93	— 0.61	—17.31	—17.30	19 44 34.02	+ 0.05
	42	β Aquilæ . . .	S.	11.4	13.0	17.1	19.2	21.3	23.4	25.5	29.5	31.0	49 21.27	— 0.67	—17.31	—17 30	19 49 3.30	+ 0.04
	43	λ Ursæ Minoris .	S.	. .	. .	34.5	24.0	11.0	49.0	10.5	. .	. .	51 33.60	. .	. .	. .	. . . .	. .
	44	Anonymous . .	S.	11.3	14.0	15.7	21.8	24.0	26.2	32.4	34.2	36.8	5 24.04	— 1.13	. .	—17.30	20 5 5.61	— 2.06
	45	O. Arg. S. 20533 .	S.	. .	. .	50.0	52.3	54.4	56.7	59.0	. .	. .	21 54.48	— 1.32	. .	—17.30	20 21 35.86	— 2.25
	46	B. A. C. 7083 . .	S.	46.8	50.5	52.8	1.4	4.4	7.5	16.0	18.2	21.9	26 4.39	+ 0.45	. .	—17.30	20 25 46.64	— 1.65
	47	τ^2 Capricorni . .	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	48	Anonymous . .	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	49	Anonymous . .	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
28	50	δ Aquilæ . . .	E.	10.7	13.2	14.7	21.0	23.0	25.0	31.1	32.8	35.3	19 22.98	— 0.63	— 18.13	—18.16	19 19 4.19	+ 0.02

45, 47, 48. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	302 26	5.1	0.5	18.3	26.8	35	810	820	. .	. .	. .	55.7	57 29 50.7	. .	+ 1 29.4	108 37 41.3	+ 0.6
2	299 44	5.7	2.7	19.8	29.0	33	. .	870	. .	858	. .	55.7	60 11 22.3	. .	+ 1 39.3	111 19 22.8	+ 3.2
3	6 32	2.2	29.0	17.2	23.2	35	. .	. .	. .	800	796	55.7	353 23 48.8	776	— 6.6	44 30 3.4	+17.5
4	7 52	0.3	28.1	17.2	22.3	34	. .	660	. .	650	. .	55.7	352 3 30.1	. .	— 8.0	43 9 43.3	+17.6
5	296 48	4.6	0.9	17.3	27.2	34	. .	. .	. .	010	990	55.7	63 7 22.6	. .	+ 1 52.3	114 15 36.1	+ 4.2
6	307 2	2.4	28.5	17.5	26.0	36	. .	626	. .	622	. .	55.7	52 54 1.6	. .	+ 1 15.5	104 1 38.3	+ 7.3
7	300 42	0.4	25.3	12.4	21.5	34	. .	896	. .	896	. .	55.7	59 13 31.3	780	+ 1 35.7	110 21 28.2	+ 5.9
8	350 44	3.0	29.2	17.8	23.2	32	. .	894	. .	878	. .	55.7	9 11 4.1	. .	+ 9.3	60 17 34.6	+ 1.9
9	320 6	5.7	2.1	19.7	27.6	32	. .	766	. .	752	. .	55.7	39 49 5.0	. .	+ 47.7	90 56 13.9	+ 0.8
10	312 38	0.6	27.4	14.9	22.7	35	. .	070	. .	070	. .	55.7	47 17 35.5	788	+ 1 2.0	98 24 58.7	+ 0.5
11	321 46	5.0	1.7	19.0	27.2	32	260	280	. .	. .	. .	55.7	38 8 57.0	. .	+ 45.0	89 16 3.2	+ 0.7
12	313 46	4.7	0.8	18.8	27.0	36	. .	. .	. .	040	048	55.7	46 9 54.4	. .	+ 59.6	97 17 15.2	+12.9
13	13 18	. .	27.8	. .	21.7	38	. .	. .	. .	440	450	55.7	346 38 28.9	. .	— 13.5	37 44 36.6	+ 1.4
14	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . .	768			
15	333 38	0.4	27.4	15.3	22.5	35	. .	248	. .	262	. .	55.7	26 17 38.5	762	+ 28.1	77 24 27.8	+ 0.5
16	341 32	5.4	3.0	19.9	27.1	36	. .	535	. .	515	. .	55.7	18 24 3.0	759	+ 18.9	69 31 43.1	+ 0.7
17																	
18	322 6	2.1	28.0	15.3	24.8	34	314	430	. .	. .	. .	55.7	37 49 26.6	710	+ 43.7	88 56 31.5	
19	321 34	9 28.3	23.2	9.0	20.0	34	. .	. .	. .	531	563	55.7	38 21 23.2	. .	+ 44.5	89 28 28.9	
20	52 24	. .	28.5	. .	22.6	38	638	. .	640	. .	635	55.7	307 32 31.9	. .	— 1 13.1	358 37 40.0	+ 0.5
21	11 0	9 29.5	27.7	14.9	23.7	39	. .	074	. .	090	. .	55.7	348 56 37.7	. .	— 11.1	40 2 47.8	+ 0.7
22	340 4	2.0	29.0	15.1	24.0	32	. .	130	. .	228	. .	55.7	19 50 52.4	709	+ 20.3	70 57 33.9	+ 1.3
23	298 32	6.5	3.0	21.0	26.6	38	. .	. .	. .	126	. .	54.9	61 24 27.0	. .	+ 1 43.0	112 32 31.2	
24	298 32	6.5	3.0	21.0	26.6	39	. .	. .	. .	. .	367	54.9	61 24 45.9	706	+ 1 43.0	112 32 50.1	
25	331 20	14.1	11.1	29.0	3.2	31	. .	018	. .	006	. .	54.9	28 34 45.6	. .	+ 30.7	79 41 37.5	— 0.3
26	329 34	18.7	15.4	4.6	8.3	31	. .	651	. .	621	. .	54.9	30 21 0.1	. .	+ 33.0	81 27 54.3	+ 0.7
27	327 8	13.3	8.8	28.2	2.2	34	. .	. .	. .	221	205	54.9	32 47 33.4	. .	+ 36.4	83 54 31.0	+ 0.8
28																	
29	298 16	16.3	11.3	0.0	5.9	38	. .	485	. .	521	. .	54.9	61 40 42.0	733	+ 1 44.5	112 48 47.7	+ 3.0
30	6 32	9.8	12.1	29.7	1.4	35	. .	. .	. .	080	082	54.9	353 23 47.4	. .	— 6.6	44 30 2.0	+17.8
31	353 12	10.2	7.7	24.2	0.7	34	. .	. .	. .	512	. .	54.9	6 43 35.7	. .	+ 6.7	57 50 3.6	
32	353 12	10.2	7.7	24.2	0.7	34	. .	. .	. .	. .	280	54.9	6 43 32.4	. .	+ 6.7	57 50 0.3	— 1.1
33	326 36	15.5	10.5	27.8	4.5	35	. .	. .	. .	286	298	54.9	33 19 51.5	766	+ 37.3	84 26 50.0	0.0
34	349 22	16.5	12.4	29.9	5.0	33	. .	702	. .	724	. .	54.9	10 33 28.8	764	+ 10.6	61 40 0.6	— 0.1
35	333 38	20.6	16.5	3.3	9.9	34	220	190	. .	230	240	52.4	26 17 38.1	708	+ 27.7	77 24 27.0	— 0.7
36	341 32	22.0	19.8	5.3	11.3	35	680	. .	. .	. .	700	52.4	18 24 2.9	. .	+ 18.6	69 30 42.7	— 0.4
37	341 32	22.0	19.8	5.3	11.3	35	. .	833	. .	885	. .	52.4	18 24 5.3	. .	+ 18.6	69 30 45.1	
38	52 24	7.0	6.3	22.5	28.8	38	. .	296	363	335	. .	52.4	307 32 29.7	625	— 1 11.5	358 37 39.4	— 1.6
39	310 34	. .	15.7	. .	10.4	36	. .	220	. .	310	. .	52.4	49 22 9.8	620	+ 1 4.0	100 29 35.0	+ 0.8
40																	
41																	
42																	
43	49 56	20.5	18.0	6.2	9.8	31	. .	. .	. .	923	919	53.9	309 59 5.5	. .	— 1 6.5	1 4 20.2	+ 0.5
44	307 0	22.2	17.8	5.6	12.7	38	. .	. .	. .	. .	410	53.9	52 56 45.6	686	+ 1 13.8	104 4 20.6	+ 4.6
45	299 44	23.9	20.2	5.4	13.5	32	986	. .	. .	. .	978	53.9	60 11 23.6	. .	+ 1 37.2	111 19 22.0	+ 3.2
46	6 32	20.3	. .	4.9	. .	34	. .	684	. .	688	. .	53.9	353 23 46.9	. .	— 6.5	44 30 1.6	+18.3
47	305 40	25.7	20.5	6.1	14.8	36	746	. .	. .	. .	730	53.9	54 16 22.3	. .	+ 1 17.6	105 24 1.1	+ 5.5
48	356 2	26.3	23.4	11.5	14.1	37	106	. .	. .	. .	. .	53.9	3 54 30.1	. .	+ 3.8	55 0 55.1	+16.9
49	356 2	26.3	23.4	11.5	14.1	32	. .	. .	. .	. .	720	53.9	3 53 23.1	695	+ 3.8	54 59 48.1	+16.9
50	323 54	9 27.2	24.7	12.8	19.1	33	. .	355	. .	390	. .	57.4	36 1 8.3	. .	+ 41.7	87 8 11.2	+ 1.4

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
7	29.950	68.0	58.0
10	29.960	67.0	57.5
16	30.112	65.0	65.1
29	30.052	68.4	65.5
35	30.268	71.0	74.3

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
18	— 5.4	+ 15 58.7	. .	+ 15 53.3
19	— 5.4	— 15 58.7	. .	— 16 4.1
23	— 0.8	+ 9.4	. .	+ 8.6
24	— 0.8	— 9.4	. .	— 10.3

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Sept. 28	1	κ Aquilæ	E.	8.7	11.4	12.8	19.0	21.0	23.0	29.4	31.0	33.5	30 21.09	— 0.85	—18.24	—18.16	19 30 2.08	+ 0.12
	2	γ Aquilæ	E.	18.1	20.8	22.4	28.6	30.6	32.7	39.0	40.6	43.2	40 30.67	— 0.48	—18.14	—18.16	19 40 12.03	+ 0.01
	3	α Aquilæ	E.	40.2	42.8	44.4	50.5	52.5	54.6	0.7	2.4	5.0	44 52.57	— 0.51	—18.12	—18.16	19 44 33.90	0.00
	4	λ Ursæ Minoris.	E.	. .	. .	44.0	36.0	29.0	18.0	7.0	. .	. .	51 26.80	. .	. .	. .	. . . .	. .
	5	Anonymous	E.	12.2	14.8	16.5	22.6	24.8	27.0	33.3	35.0	37.5	5 24.86	— 1.01	. .	—18.16	20 5 5.69	— 2.00
	6	Anonymous	E.	. .	. .	44.4	46.5	48.5	50.5	52.6	. .	. .	5 48.50	— 1.01	. .	—18.16	20 5 29.33	— 2.00
	7	B. A. C. 7049	E.	. .	. .	. .	17.7	20.1	22.3	24.5	. .	. .	22 20.04	— 1.21	. .	—18.16	20 22 2.86	— 2.22
	8	B. A. C. 7077	E.	23.2	26.0	27.7	34.5	36.7	39.1	46.0	47.7	50.5	25 36.82	— 1.28	. .	—18.16	20 25 17.38	— 2.29
	9	τ^1 Capricorni	E.	19.2	21.8	23.5	29.8	31.8	34.1	40.4	42.0	44.6	30 31.91	— 1.04	. .	—18.16	20 30 12.71	— 2.15
	10	τ^2 Capricorni	E.	15.5	18.2	19.9	26.2	28.3	30.4	36.9	38.4	41.3	32 28.34	— 1.04	. .	—18.16	20 32 9.14	— 2.15
30	11	α Leonis	S.	39.4	42.0	43.6	49.9	52.0	54.1	0.4	1.9	4.6	1 51.99	— 0.64	—17.72	—17.72	10 1 33.63	— 0.04
	12	γ^1 Leonis	S.	0.3	3.0	4.8	. .	. .	. .	22.0	23.7	26.5	13 13.38	— 0.42	—17.77	—17.72	10 12 55.24	+ 0.03
	13	γ^2 Leonis	S.	. .	. .	9.2	11.4	. .	15.7	18.0	. .	. .	13 13.58	— 0.42	. .	—17.72	10 12 55.44	. .
Oct. 1	14	Sun I, S.	S.	23.0	25.6	27.2	33.3	35.3	37.4	43.5	45.0	47.6	31 35.32	— 1.05	. .	—17.71	12 31 16.56	. .
	15	Sun II, N.	S.	39.0	. .	39.9	42.0	44.5	46.2	48.2	. .	. .	33 44.16	— 1.05	. .	—17.71	12 33 25.40	. .
	16	Polaris, S. P.	S.	. .	. .	51.0	. .	1.0	36.5	11.0	. .	. .	14 1.02	. .	. .	. .	. . . .	. .
	17	α Leonis	E.	39.5	42.0	43.5	49.8	52.0	54.0	0.3	1.9	4.5	1 51.94	— 0.58	—17.71	—17.73	10 1 33.63	— 0.06
	18	γ^1 Leonis	E.	0.2	3.0	4.6	11.2	13.3	15.5	22.0	23.7	26.4	13 13.32	— 0.37	—17.74	—17.73	10 12 55.22	— 0.01
	19	δ Leonis	E.	13.1	15.8	17.5	34.0	36.1	38.4	45.0	46.6	49.4	7 36.21	— 0.35	—17.69	—17.73	11 7 18.13	— 0.10
2	20	Sun I, N.	E.	0.8	3.5	5.0	11.2	13.2	15.2	21.3	23.0	25.4	35 13.18	— 1.01	. .	—17.73	12 34 54.44	. .
	21	Sun II, S.	E.	9.7	12.3	13.7	20.0	21.9	23.9	30.2	31.7	34.3	37 21.97	— 1.01	. .	—17.73	12 37 3.23	. .
	22	Polaris, S. P.	E.	. .	. .	55.0	29.0	2.5	36.0	10.0	. .	. .	14 2.50	. .	. .	. .	. . . .	. .
	23	Venus I, N.	E.	56.6	59.1	0.7	7.0	9.0	11.0	17.5	18.9	21.6	56 9.04	— 1.21	. .	—17.73	13 55 50.10	+ 0.37
	24	Venus, S.	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	25	α Bootis	E.	54.5	57.3	59.0	5.4	7.6	9.7	16.3	17.9	20.6	10 7.59	— 0.39	—17.78	—17.73	14 9 49.47	+ 0.05
	26	ε Bootis	E.	28.0	30.8	32.5	39.4	41.7	44.0	50.9	52.7	55.6	39 41.73	— 0.16	—17.73	—17.73	14 39 23.84	— 0.02
3	27	Sun I	F.	39.2	41.7	43.3	49.5	51.4	53.6	59.7	1.2	3.9	38 51.50	— 1.03	. .	—17.94	12 38 32.53	. .
	28	Sun II	F.	. .	. .	. .	0.3	2.5	4.6	8.6	10.3	12.8	41 0.45	— 1.03	. .	—17.94	12 40 41.48	. .
	29	Polaris, S. P.	F.	. .	. .	49.0	25.0	59.0	34.0	9.0	. .	. .	13 59.30	. .	. .	. .	. . . .	. .
	30	α Bootis	F.	54.9	57.6	59.3	3.5	5.5	7.7	12.3	16.6	. .	10 7.75	— 0.39	—17.95	—17.95	14 10 49.41	0.00
8	31	Polaris, S. P.	S.	44.0	. .	52.0	29.0	2.0	39.0	. .	. .	. .	14 2.57	. .	. .	. .	. . . .	. .
	32	α Leonis	S.	39.5	42.1	43.6	49.9	52.0	54.0	0.3	2.0	4.5	1 51.99	— 0.44	—17.73	—17.98	10 1 33.57	— 0.29
	33	γ^1 Leonis	S.	0.4	3.0	4.7	. .	. .	. .	22.0	23.8	26.5	13 13.40	— 0.21	—17.82	—17.98	10 12 55.21	— 0.16
	34	γ^2 Leonis	S.	. .	. .	9.3	11.4	13.7	15.9	18.0	. .	. .	13 13.66	— 0.21	. .	—17.98	10 12 55.47	. .
9	35	Sun I	S.	35.0	38.0	39.5	45.9	47.9	49.8	56.0	57.7	0.1	0 47.77	— 0.91	. .	—17.95	13 0 28.91	. .
	36	Sun II	S.	45.0	47.8	49.0	55.2	57.3	59.3	5.7	7.3	9.9	2 57.39	— 0.91	. .	—17.95	13 2 38.53	. .
	37	Polaris, S. P.	S.	. .	. .	58.5	34.0	7.0	41.0	15.0	. .	. .	14 7.10	. .	. .	—17.95	. . . .	. .
	38	Moon I, S.	S.	35.0	37.9	39.7	46.8	49.0	51.5	58.4	0.1	3.0	19 49.04	— 1.55	. .	—17.91	19 19 29.58	+74.98
	39	γ Aquilæ	S.	17.9	20.5	22.0	28.2	30.4	32.4	38.5	40.2	42.7	40 30.31	— 0.57	—17.86	—17.90	19 40 11.84	— 0.01
	40	α Aquilæ	S.	39.8	42.4	44.0	50.0	52.1	54.2	0.3	2.0	4.5	44 52.14	— 0.61	—17.77	—17.90	19 44 33.63	— 0.09
	41	β Aquilæ	S.	. .	. .	. .	. .	23.6	25.7	29.7	31.3	33.9	49 21.55	— 0.57	—17.94	—17.90	19 49 3.08	+ 0.07
	42	λ Ursæ Minoris	S.	. .	. .	. .	48.0	39.0	. .	16.5	38.0	55.0	50 59.82	. .	. .	. .	. . . .	. .
	43	Anonymous	S.	25.8	28.8	30.8	38.1	40.7	43.2	50.6	52.5	55.7	37 40.69	+ 0.15	. .	—17.90	20 37 22.94	— 1.47
	44	Weisse (2) 1373	S.	8.7	11.8	13.7	21.0	23.5	26.0	33.4	35.2	38.3	42 23.51	+ 0.11	. .	—17.90	20 42 5.72	— 1.52
	45	B. A. C. 7237	S.	38.5	41.5	43.2	49.9	52.0	54.3	1.0	2.7	5.6	45 52.08	— 1.47	. .	—17.90	20 45 32.71	— 2.20
	46	ε Tauri	S.	16.2	19.0	20.6	27.0	29.2	31.4	37.9	39.5	42.2	21 29.22	— 0.22	—17.92	—19.84	4 21 11.16	+ 0.07
	47	α Tauri	S.	42.4	45.0	46.8	53.0	55.3	57.4	3.7	5.4	8.0	28 55.22	— 0.30	—17.89	—17.84	4 28 37.08	+ 0.03
	48	ι Aurigæ	S.	45.3	48.3	50.2	57.5	59.9	2.3	9.5	11.5	14.5	48 59.89	+ 0.22	—17.94	—17.83	4 48 42.28	+ 0.07
	49	ε Ursæ Minoris, S.P.	S.	. .	2.0	2.3	31.7	. .	31.2	0.0	. .	. .	59 30.42	. .	. .	. .	. . . .	. .

11. Telescope micrometer reading increased one revolution in reduction.
38. Bisections at wires II, III, V, and VI.
44. Telescope micrometer reading decreased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellaneous Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		″	° ′ ″	″
1	313 44	10 12.2	8.7	28.7	4.5	32	. .	510	. .	520	. .	57.4	46 11 10.2	788	+ 59.9	97 18 31.3	+ 2.1
2	331 20	12.4	9.8	28.5	3.0	30	. .	900	. .	930	. .	57.4	28 34 45.7	. .	+ 31.3	79 41 38.2	+ 0.6
3	329 34	8.5	5.5	24.2	0.0	32	. .	110	. .	120	. .	57.4	30 21 0.2	. .	+ 33.7	81 27 55.1	+ 1.7
4	49 56	8.5	6.5	25.2	0.0	32	310	. .	500	. .	440	57.4	309 59 5.6	. .	− 1 8.5	1 4 18.3	− 0.9
5	307 0	9.5	5.5	25.0	2.2	38	. .	720	. .	790	. .	57.4	52 56 43.0	. .	+ 1 16.1	104 4 20.3	+ 4.5
6	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	57.4	52 55 40.0	. .	+ 1 16.1	104 3 17.3	+ 4.5
7	298 16	10 12.7	10.0	28.5	5.2	38	. .	260	. .	280	. .	57.4	61 40 39.1	. .	+ 1 46.5	112 48 46.8	+ 2.5
8	295 42	11.4	7.8	25.6	3.2	36	. .	180	. .	240	. .	57.4	64 14 5.3	. .	+ 1 58.9	115 22 25.4	+ 1.9
9	305 28	10 14.6	11.0	29.0	6.8	33	. .	890	. .	910	. .	57.4	54 27 33.2	. .	+ 1 20.6	105 35 15.0	+ 5.3
10	305 40	11.5	7.5	25.0	3.5	37	. .	850	. .	870	. .	57.4	54 16 30.6	. .	+ 1 20.0	105 24 11.8	+ 5.3
11	333 38	12.3	8.3	25.6	3.5	33	. .	514	. .	550	. .	56.6	26 17 39.4	778	+ 28.2	77 24 28.8	+ 0.4
12	341 32	16.8	14.0	29.8	8.0	35	. .	877	. .	881	. .	56.6	18 24 4.8	776	+ 19.0	69 30 45.0	+ 0.9
13	. .	16.8	14.0	29.8	8.0	35	. .	. .	. .	. .	932	56.6	18 24 5.7	. .	+ 19.0	69 30 45.9	
14	317 18	10 0.8	26.3	17.3	22.6	38	. .	530	. .	. .	. .	56.6	42 38 30.4	. .	+ 52.2	93 45 43.8	
15	317 50	9 29.6	25.2	14.2	23.5	38	. .	. .	. .	557	533	56.6	42 6 28.5	. .	+ 51.3	93 13 41.0	
16	52 24	17.3	15.7	1.4	9.9	37	853	852	870	830	868	56.6	307 32 36.3	748	− 1 13.6	358 37 43.9	+ 0.2
17	333 38	9.0	4.1	23.5	29.0	34	. .	560	. .	580	. .	58.0	26 17 37.8	838	+ 28.6	77 24 27.6	− 1.0
18	341 32	5.0	2.0	19.5	25.7	36	. .	470	. .	450	. .	58.0	18 24 3.5	. .	+ 19.2	69 30 43.9	− 0.3
19	342 16	9.7	7.0	24.8	0.8	35	. .	550	. .	530	. .	58.0	17 39 54.4	. .	+ 18.4	68 46 34.0	+ 0.6
20	317 26	10 18.6	15.2	2.7	11.3	34	290	240	. .	. .	. .	58.0	42 29 44.1	. .	+ 52.1	93 36 57.4	
21	316 56	10 22.2	13.0	1.5	11.5	42	. .	. .	. .	420	340	58.0	43 1 47.8	765	+ 53.1	94 9 2.1	
22	52 24	3.5	1.5	20.3	28.0	38	700	. .	570	. .	600	58.0	307 32 36.7	. .	− 1 13.8	358 37 44.1	+ 0.1
23	309 38	7.3	4.0	22.5	0.0	38	970	. .	. .	. .	940	58.0	50 18 44.5	. .	+ 1 8.4	101 26 14.1	
24	309 38	7.3	4.0	22.5	0.0	39	. .	580	. .	560	. .	58.0	50 18 54.0	. .	+ 1 8.4	101 26 23.6	
25																	
26	348 40	6.2	3.5	24.0	26.7	38	. .	260	. .	230	. .	58.0	11 16 33.1	760	+ 11.5	62 23 5.8	+ 2.6
27																	
28																	
29																	
30																	
31																	
32																	
33																	
34																	
35																	
36																	
37																	
38	294 10	19.7	15.5	12.3	10.1	36	843	885	. .	811	792	55.4	65 46 22.9	794	+ 2 7.2	116 54 51.3	
39																	
40	329 34	17.7	13.5	10.5	7.6	31	. .	540	. .	568	. .	55.4	30 20 59.9	. .	+ 33.7	81 27 54.8	+ 1.5
41	327 8	12.4	8.3	5.0	2.1	34	. .	. .	. .	. .	130	55.4	32 47 34.0	. .	+ 37.1	83 54 32.3	+ 2.3
42	49 56	13.5	11.7	9.9	4.9	32	. .	. .	. .	046	992	55.4	309 59 4.9	795	− 1 8.6	1 4 17.5	− 0.2
43	356 2	14.0	11.1	9.2	3.9	33	. .	. .	. .	067	065	55.4	3 53 20.5	802	+ 3.9	54 59 45.6	+18.9
44	354 56	20.5	16.3	14.6	9.1	36	. .	. .	. .	194	164	55.4	4 59 58.6	. .	+ 5.1	56 6 24.9	+18.8
45	296 48	17.2	11.1	8.7	6.5	33	. .	. .	. .	162	230	55.4	63 7 23.3	806	+ 1 53.5	114 15 38.0	+ 2.6
46	339 56	18.9	14.2	12.5	7.9	33	. .	240	. .	260	. .	55.4	19 59 27.0	. .	+ 21.2	71 6 9.4	+ 0.5
47	337 18	14.0	10.6	7.8	5.2	35	. .	. .	. .	948	942	55.4	22 38 4.4	842	+ 24.3	73 44 49.9	+ 0.8
48	354 0	9.8	6.7	4.0	29.9	35	. .	128	. .	148	. .	55.4	5 55 48.0	. .	+ 6.1	57 2 15.3	+ 0.1
49																	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	. .	. .	58.0
12	30.026	64.7	61.2
16	29.99	63.3	62.7
17	30.100	55.0	55.0
21	. .	. .	63.0
26	. .	. .	65.5
29	29.816	68.0	75.8
32	30.20	52.3	52.5
34	30.20	53.0	54.0
37	30.17	61.2	65.1
39	30.10	62.0	57.2
42	. .	. .	57.1
43	30.10	61.0	56.2
47	29.98	54.0	49.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
14	− 6.0	− 16 1.4	. .	− 16 7.4
15	− 5.9	+ 16 1.4	. .	+ 15 55.4
20	− 6.0	+ 16 2.3	. .	+ 15 56.4
21	− 6.0	− 16 2.3	. .	− 16 8.3
23	− 4.3	+ 4.8	. .	+ 0.5
24	− 4.3	− 4.8	+ 0.1	− 9.0
38	−53 49.1	− 16 9.0	. .	− 1 9 58.1

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Oct. 9	1	α Columbæ	S.	7.4	10.5	12.3	19.7	22.2	24.6	32.0	33.7	37.0	35 22.16	— 1.73	—17.91	—17.83	5 35 2.60	+ 0.04
	2	ν Orionis	S.	. .	. .	31.8	33.9	36.0	38.1	40.2	. .	. .	0 36.00	— 0.34	. .	—17.84	6 0 17.84	— 1.96
	3	δ Ursæ Minoris, S. P.	S.	. .	31.5	47.5	21.5	14.0	38.0	. .	. .	. .	14 3.82	—24.62	+28.75	—17.82	18 13 21.48	— 1.29
	4	51 Cephei	S.	. .	. .	12.0	54.5	34.0	. .	42.0	15.0	7.0	39 53.33	. .	. .	—17.82	6 40 4.26	+ 1.84
	5	α^1 Geminorum	S.	30.2	33.4	35.2	. .	. .	. .	54.5	56.3	59.4	26 44.83	+ 0.22	. .	—17.81	7 26 27.24	. .
	6	α^2 Geminorum	S.	. .	. .	40.3	42.7	45.2	47.7	50.0	. .	. .	26 45.18	+ 0.22	—17.93	—17.82	7 26 27.58	+ 0.35
	7	β Geminorum	S.	34.3	37.1	39.0	45.9	48.2	50.4	57.5	59.3	2.1	37 48.20	+ 0.08	—17.88	—17.82	7 37 30.46	+ 0.03
	8	γ^1 Leonis	S.	0.3	3.1	4.8	11.2	13.4	15.6	21.3	23.9	26.5	13 13.46	— 0.19	—17.88	—17.81	10 12 55.46	+ 0.05
	9	δ Leonis	E.	23.2	26.0	27.7	34.3	36.5	38.7	45.3	46.8	49.6	7 36.46	— 0.40	—17.75	—17.81	11 7 18.25	— 0.12
	10	β Leonis	E.	37.8	40.4	42.0	48.4	50.4	52.5	58.9	0.5	3.2	42 50.46	— 0.58	—17.88	—17.81	11 42 32.07	+ 0.05
10	11	Sun I, N.	E.	16.5	19.0	20.7	26.7	28.8	31.0	37.2	38.6	41.2	4 28.86	— 1.20	. .	—17.81	13 4 9.85	. .
	12	Sun II, S.	E.	26.1	28.8	30.4	36.5	38.5	40.8	46.9	48.5	51.0	6 38.61	— 1.20	. .	—17.81	13 6 19.60	. .
	13	Polaris, S. P.	E.	. .	. .	54.0	35.0	10.0	41.0	. .	. .	. .	14 7.28	. .	. .	. .	. . . .	. .
	14	α Bootis	E.	54.7	57.4	59.0	5.5	7.6	9.8	16.4	18.0	20.7	10 7.68	— 0.44	—17.84	—17.81	14 10 49.43	+ 0.03
	15	Venus I, N.	E.	51.0	53.9	55.4	. .	. .	. .	12.2	13.9	16.5	34 3.82	— 1.42	. .	—17.81	14 33 44.59	+ 0.39
	16	ε Bootis	E.	. .	. .	37.0	39.4	41.8	44.1	46.5	. .	. .	39 41.76	— 0.19	—17.79	—17.81	14 39 23.76	— 0.04
	17	β Libræ	E.	14.2	16.8	18.3	24.4	26.5	28.6	34.9	36.4	39.0	10 26.57	— 1.25	—17.76	—17.81	15 10 7.51	— 0.05
	18	α Serpentis	E.	4.4	7.0	8.7	14.7	16.9	18.9	25.0	26.6	29.2	38 16.82	— 0.81	—17.84	—17.81	15 37 58.20	+ 0.05
	19	ε Serpentis	E.	32.8	35.5	37.0	43.3	45.3	47.3	53.6	55.0	57.4	44 45.24	— 0.87	—17.81	—17.81	15 44 26.76	+ 0.20
12	20	Polaris, S. P.	S.	54.0	50.0	. .	33.5	10.0	42.5	16.5	. .	. .	14 8.42	. .	. .	. .	. . . .	. .
14	21	γ Aquilæ	E.	. .	. .	. .	. .	. .	. .	39.3	40.9	43.4	40 30.99	— 0.44	—18.77	—18.72	19 40 11.83	+ 0.08
	22	α Aquilæ	E.	40.3	43.0	44.6	50.9	52.9	55.0	1.2	2.8	5.3	44 52.89	— 0.49	—18.73	—18.72	19 44 33.68	+ 0.05
	23	β Aquilæ	E.	9.8	12.4	14.0	20.0	22.1	24.2	30.5	32.0	34.5	49 22.17	— 0.55	—18.66	—18.72	19 49 2.90	— 0.03
	24	λ Ursæ Minoris	E.	. .	. .	46.5	33.0	. .	. .	. .	35.0	50.0	50 55.62	. .	. .	. .	. . . .	. .
15	25	α Leonis	S.	41.0	43.7	45.1	51.5	53.6	55.7	2.0	3.6	6.1	1 53.59	— 0.44	—19.17	—19.15	10 1 34.00	— 0.02
	26	γ^1 Leonis	S.	1.8	4.6	6.2	12.8	15.0	17.1	23.5	25.2	28.0	13 14.91	— 0.24	—19.13	—19.15	10 13 55.52	— 0.04
16	27	Polaris	S.	. .	. .	21.0	47.0	13.0	36.5	1.0	. .	. .	12 11.70	. .	. .	. .	. . . .	. .
	28	β Arietis	S.	43.7	46.3	47.9	54.6	56.7	58.9	5.4	7.0	9.9	47 56.71	— 0.23	—19.33	—19.36	1 47 37.12	— 0.01
	29	α Arietis	S.	6.8	9.6	11.2	17.8	20.0	22.2	29.0	30.6	33.4	0 20.07	— 0.16	—19.38	—19.36	2 0 0.55	+ 0.03
	30	μ Ceti	S.	11.8	14.3	16.0	22.0	24.2	26.3	32.4	34.0	36.5	38 24.17	— 0.51	. .	—19.37	2 38 4.29	— 2.71
	31	σ Arietis	S.	35.6	38.2	39.8	46.2	48.3	50.5	56.6	58.3	1.0	44 48.28	— 0.38	. .	—19.37	2 44 28.53	— 2.74
	32	53 Arietis	S.	23.1	25.9	27.4	33.9	36.0	38.0	44.5	46.0	48.8	0 35.96	— 0.31	. .	—19.37	3 0 16.28	— 2.76
	33	ζ Arietis	S.	42.0	44.9	46.5	53.0	55.0	57.3	4.0	5.6	8.4	7 55.19	— 0.22	—19 39	—19.38	3 7 35.59	— 0.03
	34	τ^1 Arietis	S.	59.9	2.6	4.2	10.6	12.9	15.2	21.5	23.0	25.9	14 12.87	— 0.22	. .	—19.38	3 13 53.27	— 2.79
	35	f Tauri	S.	58.5	1.0	2.7	9.0	11.0	13.0	19.4	21.0	23.6	24 11.02	— 0.44	. .	—19.38	3 24 51.20	— 2.67
	36	A^1 Tauri	S.	17.0	19.7	21.3	27.9	30.1	32.4	39.0	40.8	43.4	57 30.18	— 0.19	. .	—19.39	3 57 10.60	— 2.73
	37	ω^2 Tauri	S.	. .	. .	2.7	5.9	8.0	10.2	12.4	. .	. .	10 7.84	— 0.23	. .	—19.39	4 9 48.22	— 2.67
	38	63 Tauri	S.	. .	. .	22.7	24.7	26.8	29.0	31.0	. .	. .	16 26.84	— 0.33	. .	—19.39	4 16 7.12	— 2.60
	39	ε Tauri	S.	18.0	20.6	22.2	28.7	30.8	33.0	39.7	41.2	44.0	21 30.91	— 0.27	—19.38	—19.39	4 21 11.25	— 0.02
	40	α Tauri	S.	44.2	46.9	48.4	54.9	57.0	59.0	5.5	7.0	9.7	28 56.96	— 0.34	—19.39	—19.39	4 28 37.23	+ 0.01
	41	9 Camelopard., (R.)	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	42	ε Ursæ Minoris, S. P.	S.	. .	. .	2.0	43.3	32.5	31.0	1.2	30.5	10.5	59 31.29	. .	. .	. .	. . . .	. .
	43	β Orionis, (R.)	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	44	α Leonis	S.	41.4	43.9	45.5	51.8	53.8	56.0	2.2	3.8	6.4	1 53.87	— 0.44	—19.42	—19.44	10 1 33.99	— 0.06
	45	γ^1 Leonis	S.	2.2	4.9	6.6	13.0	15.3	17.5	24.0	25.6	28.3	13 15.27	— 0.23	—19.47	—19.44	10 12 55.60	+ 0.01
18	46	β Leonis	S.	39.9	42.6	44.1	50.5	52.5	54.7	1.0	2.6	5.2	42 52.57	— 0.44	—19.97	—19.92	11 42 32.21	+ 0.03
	47	o Virginis	S.	49.7	52.2	54.0	0.1	2.2	4.4	10.0	12.0	14.7	59 2.14	— 0.60	—19.88	—19.92	11 58 41.62	— 0.06
	48	Polaris, S. P.	S.	. .	0.0	35.0	9.0	44.0	18.5	27.5	24.0	38.0	14 8.69	. .	. .	. .	. . . .	. .

24. Bisections at wires C_4 and D_3.
38. Bisections at wires B_1 and D_3.
41. Bisections at wires I and III.
43. Bisections at wires D_1 and VI.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	286 56	21.0	15.3	11.4	10.2	30	. .	. .	. .	503	587	55.4	72 58 46.1	849	+ 3 8.7	124 8 16.0	+ 0.6
2	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . . .	850			
3																	
4																	
5	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . . .	856			
6																	
7																	
8	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . . .	804			
9	342 16	11.3	10.0	5.0	2.0	35	. .	620	. .	600	. .	54.5	17 39 56.1	. .	+ 18.0	68 46 35.3	+ 0.4
10	336 20	4.2	1.5	29.5	24.2	36	. .	540	. .	580	. .	54.5	23 36 3.4	760	+ 24.6	74 42 49.2	+ 2.1
11	314 22	6.0	28.7	28.3	26.8	35	050	975	. .	. .	. .	54.5	45 33 40.1	. .	+ 56.9	96 40 58.2	
12	313 50	10 7.1	28.0	29.5	28.1	35	. .	. .	. .	370	300	54.5	46 5 44.7	700	+ 58.0	97 13 3.9	
13	52 24	3.0	2.5	28.7	26.7	38	. .	900	. .	870	. .	54.5	307 32 39.4	. .	− 1 12.5	358 37 48.1	+ 0.9
14	340 54	10.8	8.8	5.5	1.7	37	. .	505	. .	520	. .	54.5	19 2 24.9	. .	+ 19.2	70 9 5.3	+ 3.3
15	306 2	5.5	2.0	28.5	25.3	38	350	. .	. .	. .	390	54.5	53 54 31.4	. .	+ 1 16.1	105 2 8.7	+ 0.9
16	348 40	2.5	29.7	26.5	20.7	38	. .	810	. .	820	. .	54.5	11 16 35.7	. .	+ 11.1	62 23 8.0	+ 3.2
17	312 8	17.0	14.5	11.0	6.5	32	. .	640	. .	590	. .	54.5	47 47 15.1	. .	+ 1 1.1	98 54 37.4	+ 3.5
18	327 52	5.2	3.0	29.5	25.0	33	. .	465	. .	495	. .	54.5	32 3 16.9	. .	+ 34.7	83 10 12.8	+ 2.0
19	325 54	10.7	7.3	5.1	1.0	32	. .	710	. .	700	. .	54.5	34 1 10.3	660	+ 37.4	85 8 8.9	+ 2.7
20	. .	. .	. .	. .	. .	.	. .	. .	. .	. .	. .	. .	. . . .	842			
21	331 20	6.5	3.0	1.5	26.0	31	. .	. .	. .	480	480	53.5	28 34 46.3	. .	+ 31.9	79 41 39.4	+ 1.8
22	329 34	4.5	1.7	1.0	25.3	32	. .	240	. .	180	. .	53.5	30 20 56.4	. .	+ 34.3	81 27 51.9	− 1.5
23	327 8	6.8	2.4	2.0	27.0	34	. .	525	. .	545	. .	53.5	32 47 33.4	. .	+ 37.7	83 54 32.3	+ 2.2
24	49 56	3.0	0.0	29.3	24.5	32	. .	810	. .	. .	530	53.5	309 59 4.1	875	− 1 9.7	1 4 15.6	− 1.9
25	333 38	8.9	4.6	2.2	0.0	34	. .	. .	. .	716	750	55.4	26 17 40.2	869	+ 28.8	77 24 30.2	− 0.3
26	341 32	12.0	7.6	5.4	1.9	36	190	246	. .	230	182	55.4	18 24 5.9	863	+ 19.4	69 30 46.5	0.0
27																	
28	341 14	16.6	12.5	10.3	5.0	36	. .	126	. .	170	. .	55.2	18 42 9.0	. .	+ 20.0	69 48 50.2	+ 0.9
29	343 54	14.8	10.7	9.1	4.0	34	. .	570	. .	622	. .	55.2	16 1 43.7	887	+ 17.0	67 8 21.9	+ 0.6
30	330 38	11.8	7.3	5.6	2.0	37	. .	717	. .	777	. .	55.2	29 18 29.3	890	+ 33.2	80 25 23.7	+16.5
31	335 36	18.1	12.4	11.3	5.2	34	. .	497	. .	527	. .	55.2	24 19 44.5	. .	+ 26.8	75 26 32.5	+15.8
32	338 26	15.9	11.0	9.2	5.5	35	. .	. .	. .	384	398	55.2	21 29 56.6	. .	+ 23.3	72 36 41.1	+14.8
33	341 36	17.9	12.9	10.4	6.6	31	. .	478	. .	498	. .	55.2	18 18 58.3	. .	+ 19.6	69 25 39.1	+ 0.4
34	341 44	17.7	12.7	11.4	5.6	35	. .	. .	. .	709	691	55.2	18 12 2.9	. .	+ 19.5	69 18 43.6	+13.8
35	333 32	15.7	10.5	9.5	4.8	32	. .	290	. .	214	. .	55.2	26 23 8.2	900	+ 29.4	77 29 58.8	+14.7
36	342 48	11.1	7.6	4.0	0.5	41	. .	089	. .	169	. .	55.2	17 9 20.2	903	+ 18.3	68 15 59.7	+11.5
37	341 18	10.2	7.3	4.5	1.1	33	. .	. .	. .	774	792	55.2	18 37 27.4	. .	+ 20.0	69 44 8.6	+11.2
38	337 32	12.6	8.0	5.9	1.8	37	650	. .	. .	. .	640	55.2	22 24 27.9	. .	+ 24.5	73 31 13.6	+11.7
39	339 56	18.0	12.9	11.1	6.0	33	. .	312	. .	244	. .	55.2	19 59 25.8	. .	+ 21.6	71 6 8.6	+ 0.1
40	337 18	8.0	3.0	0.3	27.9	36	. .	376	. .	408	. .	55.2	22 38 3.9	. .	+ 24.8	73 44 49.9	+ 1.1
41	152 42	16.0	8.5	6.9	6.2	32	236	112	. .	. .	. .	55.2	207 13 5.3	. .	+ 30.6	23 52 45.3	+ 0.4
42																	
43	227 12	15.9	10.7	8.4	6.7	45	. .	. .	. .	756	798	55.2	132 46 36.0	915	− 1 4.3	98 20 49.5	+ 0.3
44	333 38	13.5	7.0	4.0	2.2	34	520	534	. .	584	534	55.0	26 17 39.8	920	+ 29.3	77 24 30.3	− 0.3
45	341 32	14.3	9.9	6.7	4.4	36	. .	145	. .	123	. .	55.0	18 24 6.4	918	+ 19.8	69 30 47.4	+ 0.7
46	336 20	9.4	4.4	0.4	28.4	28	. .	346	. .	372	. .	55.1	23 34 1.5	856	+ 25.4	74 40 48.1	− 0.7
47																	
48	52 24	14.7	11.4	7.9	5.5	38	. .	590	580	540	. .	55.1	307 32 44.7	806	− 1 14.8	358 37 51.1	+ 0.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	29.96	52.0	47.8
5	29.94	51.0	46.1
8	29.94	57.0	59.3
10	29.925	. .	65.5
12	29.902	66.0	69.5
16	29.87	73.0	
19	29.850	74.0	76.0
20	30.14	52.2	56.0
24	29.780	48.0	44.0
25	29.95	48.8	48.7
26	29.95	49.8	50.0
29	30.275	52.0	47.5
43	30.285	48.5	
45	30.345	47.5	46.3
46	30.10	51.3	53.0
48	30.09	55.4	57.2

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
11	− 6.3	+ 16 2.8	. .	+ 15 56.5
12	− 6.4	− 16 2.8	. .	− 16 9.2
15	− 4.7	+ 5.6	. .	+ 0.9

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Oct. 20	1	α Leonis	S.	42.5	45.0	46.7	52.9	55.0	57.0	3.4	4.9	7.6	1 55.00	− 0.41	−20.47	−20.56	10 1 34.03	− 0.13
	2	ζ Leonis	S.	42.1	45.0	46.7	53.4	55.6	57.9	4.5	6.3	9.0	9 55.61	− 0.10	. .	−20.56	10 9 34.95	− 0.66
	3	γ^1 Leonis	S.	3.3	6.0	7.7	14.2	16.4	18.5	25.0	26.7	29.3	13 16.34	− 0.20	−20.46	−20.56	10 12 55.58	− 0.12
	4	α Ursæ Majoris	S.	40.9	46.5	49.7	2.6	7.3	11.8	24.9	28.3	34.0	56 7.33	+ 1.90	. .	−20.57	10 55 48.66	− 0.29
	5	δ Leonis	S.	26.0	28.9	. .	. .	39.2	. .	. .	49.5	52.4	7 39.20	− 0.18	−20.48	−20.58	11 7 18.44	− 0.16
21	6	α Scorpii	S.	. .	. .	. .	56.4	58.6	0.8	5.3	7.2	10.0	21 56.32	− 1.41	−20.66	−20.61	16 21 34.30	+ 0.04
	7	B. A. C. 5525	S.	50.8	53.7	55.3	1.8	4.2	6.3	12.9	14.3	17.3	25 4.07	− 0.16	. .	−20.61	16 24 43.30	− 0.15
	8	λ Ursæ Minoris	S.	. .	. .	. .	48.0	. .	. .	. .	. .	. .	50 43.7	. .	. .	. .	. . . .	. .
	9	λ Ursæ Minoris	S.	. .	. .	. .	40.0	5.0	30.0	22.5	18.0	. .	50 50.02	. .	. .	. .	. . . .	. .
	10	17 Capricorni	S.	55.4	58.0	59.9	6.3	8.6	10.9	17.2	19.0	21.9	39 8.58	− 1.34	. .	−20.64	20 38 46.60	− 1.94
	11	Weisse (2) 1373	S.	. .	. .	23.7	26.0	28.6	31.0	35.8	37.7	40.9	42 26.07	+ 0.12	. .	−20.64	20 42 5.55	− 1.27
	12	χ Capricorni	S.	. .	. .	33.1	35.4	37.6	39.8	42.0	. .	. .	1 37.58	− 1.33	. .	−20.64	21 1 15.61	− 2.01
	13	ζ Cygni	S.	37.4	40.3	42.0	49.2	51.6	53.9	0.9	2.8	5.6	7 51.52	− 0.02	−20.66	−20.64	21 7 30.86	+ 0.03
	14	α Cephei, (R.)	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	15	ε Pegasi, (R.)	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	16	79 Draconis, (R.)	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	17	θ Aquarii	S.	16.3	18.9	20.4	26.5	28.6	30.7	36.9	38.4	41.0	10 28.63	− 0.99	−20.72	−20.65	22 10 6.99	+ 0.09
	18	α Piscis Australis	S.	45.2	48.2	50.0	57.2	59.5	1.9	9.0	10.6	13.8	50 59.49	− 1.60	−20.73	−20.65	22 50 37.24	+ 0.12
	19	β Pegasi	S.	43.5	46.2	47.9	54.9	57.2	59.5	6.5	8.2	11.0	57 57.21	− 0.08	. .	−20.65	22 57 36.48	− 2.68
	20	Moon II	S.	54.4	57.4	59.2	6.1	8.4	10.9	17.7	19.3	22.4	36 8.42	− 0.04	. .	−20.71	6 35 47.67	−69.18
	21	51 Cephei	S.	. .	. .	. .	. .	. .	28.3	53.0	25.0	. .	40 3.87	. .	. .	. .	. . . .	. .
	22	α^1 Geminorum	S.	33.6	36.7	38.5	. .	. .	. .	57.6	59.6	2.5	26 48.08	+ 0.12	. .	−20.71	7 26 27.49	. .
	23	α^2 Geminorum	S.	. .	. .	43.7	46.2	48.5	50.9	53.4	. .	. .	26 48.54	+ 0.12	−20.76	−20.71	7 26 27.95	+ 0.29
	24	β Geminorum	S.	. .	. .	46.9	49.1	51.5	53.9	56.2	. .	. .	37 51.52	0.00	−20.70	−20.71	7 37 30.81	− 0.04
	25	ζ Leonis	S.	42.3	45.1	46.9	53.5	55.8	58.0	4.7	6.4	9.2	9 55.77	− 0.13	. .	−20.74	10 9 34.90	− 0.65
25	26	Moon II	S.	35.6	38.3	39.9	46.5	48.6	50.8	57.2	59.0	1.7	5 48.62	+ 0.24	. .	−20.75	10 5 28.11	−64.43
	27	ζ Leonis	S.	42.2	45.0	46.8	53.1	55.6	57.8	4.5	6.2	9.0	9 55.58	+ 0.30	. .	−20.75	10 9 35.13	− 0.62
	28	γ^1 Leonis	S.	3.2	6.0	7.7	14.1	16.2	18.4	25.0	26.7	29.4	13 16.30	+ 0.27	−20.75	. .	. . . .	. .
26	29	ε Leonis	E.	43.3	46.0	47.8	54.5	56.8	59.0	5.7	7.4	10.3	38 56.76	+ 0.30	−20.82	−20.82	9 38 36.24	− 0.06
	30	γ^1 Leonis	E.	3.3	6.0	7.6	14.2	16.4	18.6	25.3	26.8	29.5	13 16.41	+ 0.26	−20.82	−20.82	10 12 55.85	− 0.02
	31	ρ Leonis	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	32	Moon II, S.	E.	24.3	27.0	28.7	35.0	37.3	39.4	45.8	47.3	50.0	53 37.20	+ 0.20	. .	−20.82	10 53 16.58	−63.42
	33	Polaris, S. P.	E.	. .	. .	14.5	47.5	24.0	57.5	31.0	41.0	38.0	13 22.86	. .	. .	. .	. . . .	. .
28	34	Polaris, S. P.	S.	. .	. .	16.0	. .	25.5	. .	35.5	. .	. .	13 25.48	. .	. .	. .	. . . .	. .
	35	α Virginis	S.	35.2	37.8	39.5	45.5	47.6	49.8	55.9	57.5	0.2	18 47.67	+ 0.01	−20.29	−20.28	13 18 27.40	− 0.01
29	36	Sun I, S.	S.	4.7	7.8	9.2	15.6	17.7	19.9	25.9	27.5	30.2	16 17.61	− 0.02	. .	−20.27	14 15 57.32	. .
	37	Sun II, N.	S.	18.3	21.0	22.7	28.9	31.0	33.0	39.4	41.0	43.7	18 31.00	− 0.02	. .	−20.27	14 18 10.71	. .
	38	β Cephei, (R.)	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	39	11 Cephei, (R.)	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	40	Anonymous	S.	35.0	37.6	39.1	45.3	47.3	49.4	55.7	57.3	0.0	8 47.41	+ 0.02	. .	−20.21	22 8 27.22	− 2.12
	41	η Aquarii	S.	. .	. .	5.0	7.0	9.0	11.0	13.0	. .	. .	29 9.00	+ 0.09	−20.23	−20.21	22 28 48.88	+ 0.05
	42	67 Aquarii	S.	43.1	45.8	47.4	53.5	55.6	57.7	3.9	5.4	8.0	36 55.60	+ 0.03	. .	−20.21	22 36 35.42	− 2.24
	43	λ Aquarii	S.	6.2	9.0	10.4	16.5	18.6	20.6	26.9	28.4	31.0	46 18.62	+ 0.03	−20.20	−20.21	22 45 58.44	+ 0.07
	44	α Piscis Australis	S.	43.4	46.0	48.0	55.1	57.5	59.9	6.9	8.8	11.7	50 57.48	− 0.18	−20.23	−20.21	22 50 37.09	+ 0.06
	45	α Pegasi	S.	32.6	35.2	36.9	43.2	45.3	47.4	53.7	55.3	58.0	58 45.29	+ 0.22	−20.15	−20.20	22 58 25.31	− 0.02
	46	ϕ Aquarii	S.	51.8	54.3	55.8	2.0	4.0	6.1	12.4	13.9	16.4	8 4.08	+ 0.04	. .	−20.20	23 7 43.92	− 2.42
31	47	B. A. C. 7198	F.	. .	. .	. .	. .	. .	. .	. .	56.9	0.5	40 42.61	+ 0.74	. .	−19.92	20 40 23.43	− 0.77
	48	χ Capricorni	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	49	27 Capricorni	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .

14. Bisections at wires C_1, C_5, and V–VII.
16. Bisections at wires V–VII.
32. Bisections at wires II–VI.
33. Bisections at wires C_3 and D_3.
46. Telescope micrometer reading decreased five revolutions in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	333 38	10.7	4.0	1.9	29.1	34	. .	704	. .	712	. .	55.1	26 17 39.6	943	+ 29.4	77 24 30.2	— 1.0
2	345 6	10.4	6.7	4.0	1.3	36	. .	773	. .	789	. .	55.1	14 50 13.2	. .	+ 15.8	65 56 50.2	— 5.3
3	341 32	22.2	15.4	12.4	9.0	35	. .	750	. .	730	. .	55.1	18 24 6.4	935	+ 19.8	69 30 47.4	0.0
4	23 28	11.0	5.2	2.0	28.3	35	. .	475	. .	454	. .	55.1	336 27 52.0	912	— 25.9	27 33 47.3	— 1.1
5	342 16	15.2	9.4	5.4	2.1	35	. .	. .	. .	509	493	55.1	17 39 55.9	. .	+ 18.9	68 46 36.0	— 1.1
6	294 56	5.5	2.2	27.7	26.0	38	. .	120	. .	184	. .	55.1	65 0 28.7	765	+ 2 5.8	116 8 55.7	+ 6.1
7	342 48	26.2	23.4	20.1	12.5	33	. .	. .	. .	342	352	55.1	17 7 5.4	. .	+ 18.2	68 13 44.8	+ 3.0
8																	
9																	
10	299 6	9.7	. .	0.2	. .	38	. .	104	. .	156	. .	52.3	60 50 30.2	. .	+ 1 44.7	111 58 36.1	+ 2.3
11	354 56	9.1	. .	4.6	. .	31	. .	. .	. .	. .	912	52.3	4 58 57.2	826	+ 5.1	56 5 23.5	+19.5
12	299 22	9.0	. .	0.2	. .	37	. .	050	. .	070	. .	52.3	60 34 13.4	. .	+ 1 43.4	111 42 18.0	+ 3.6
13	350 44	6.3	. .	1.1	. .	32	. .	288	. .	326	. .	52.3	9 10 59.8	. .	+ 9.5	60 17 30.5	+ 1.1
14	156 46	8.7	2.8	2.7	2.0	32	050	058	057	114	128	52.3	203 8 56.0	835	+ 25.0	27 57 0.2	+ 0.2
15	209 32	4.0	. .	29.9	. .	38	338	289	. .	284	270	52.3	150 24 29.8	836	— 33.2	80 42 24.6	+ 1.8
16	145 44	5.1	. .	28.8	. .	36	. .	. .	065	125	230	52.3	214 11 55.5	. .	+ 39.7	16 53 46.0	— 1.4
17	312 38	0.5	. .	24.8	. .	34	. .	958	. .	010	. .	52.3	47 17 34.6	. .	+ 1 3.3	98 24 59.1	— 0.2
18	290 46	9.6	. .	2.2	. .	32	. .	158	. .	180	. .	52.3	69 8 59.5	. .	+ 2 32.2	120 17 52.9	+ 0.4
19	348 26	8.5	. .	2.8	. .	35	. .	225	. .	147	. .	52.3	11 29 46.0	850	+ 11.9	62 36 19.1	+21.0
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29	345 24	9 18.2	17.5	12.9	5.5	36	. .	375	. .	355	. .	55.7	14 31 45.3	. .	+ 15.1	65 38 21.6	— 0.2
30	341 32	1.8	1.1	25.9	23.3	37	. .	020	. .	040	. .	55.7	18 24 10.0	828	+ 19.2	69 30 50.4	+ 1.8
31	331 0	26.8	25.5	21.5	15.5	33	. .	990	. .	970	. .	55.7	28 55 17.3	. .	+ 31.9	80 2 10.4	— 0.6
32	333 12	22.0	21.4	17.0	9.6	35	150	310	470	680	820	55.7	26 43 35.6	810	+ 28.8	77 50 25.6	
33	52 24	8.7	10.3	6.2	0.5	38	. .	. .	830	. .	960	55.7	307 32 45.9	752	— 1 13.1	358 37 54.0	+ 0.2
34																	
35																	
36	307 4	22.2	20.3	16.6	12.0	38	322	456	. .	. .	. .	59.2	52 51 24.3	. .	+ 1 18.7	104 0 4.4	
37	307 36	27.8	24.5	21.5	16.7	37	. .	. .	. .	010	950	59.2	52 20 6.6	910	+ 1 17.2	103 27 55.0	
38	148 50	2.0	27.6	24.8	21.9	36	. .	. .	. .	906	002	59.2	211 6 9.3	. .	+ 36.4	19 59 35.5	— 3.8
39	148 6	9 16.7	12.7	11.0	7.2	34	. .	. .	. .	500	550	59.2	211 49 17.2	964	+ 37.5	19 16 26.5	+11.6
40	312 22	12.9	10.0	6.7	4.1	33	. .	. .	. .	854	766	59.2	47 33 34.2	966	+ 1 6.0	98 41 1.4	+10.6
41	320 16	11.2	8.9	6.3	2.5	32	. .	368	. .	326	. .	59.2	39 39 10.7	. .	+ 50.1	90 46 22.0	+ 1.0
42	313 26	15.1	11.3	10.0	6.3	36	. .	624	. .	578	. .	59.2	46 30 19.4	. .	+ 1 3.7	97 37 44.3	+12.1
43	312 48	5.6	2.4	29.9	26.3	35	. .	. .	. .	864	882	59.2	47 7 58.5	. .	+ 1 5.1	98 15 24.8	+ 1.7
44	290 46	14.1	12.0	8.4	5.6	31	. .	. .	. .	218	260	59.2	69 8 56.1	973	+ 2 37.7	120 17 55.0	+ 1.4
45	335 34	11.5	9.8	6.9	1.6	34	. .	. .	. .	992	954	59.2	24 21 51.3	. .	+ 27.4	75 28 39.9	+ 1.0
46	314 18	9.3	6.5	4.3	29.8	35	. .	704	. .	718	. .	59.2	45 36 43.3	976	+ 1 1.8	96 44 6.3	+13.4
47	7 52	9 22.8	21.4	20.4	12.7	34	. .	. .	. .	484	470	59.2	352 3 26.0	902	— 8.2	43 9 39.0	+21.8
48	299 22	4.2	0.8	29.2	26.0	37	. .	002	. .	. .	. .	59.2	60 34 15.0	. .	+ 1 44.3	111 42 20.5	+ 3.0
49	300 00	4.0	0.5	28.5	25.4	36	. .	. .	. .	262	264	59.2	59 56 2.9	. .	+ 1 41.7	111 4 5.8	+ 3.2

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
3	30.21	43.7	43.2
19	30.21	56.0	52.0
22	. .	. .	45.9
25	. .	. .	51.8
28	29.78	57.3	55.5
30	29.780	53.0	50.5
32	29.785	55.0	55.5
33	29.790	61.0	64.0
40	30.485	45.2	40.2
47	30.005	48.5	43.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ′
32	—24 28.5	— 14 58.2	. .	— 39 26.7
36	— 7.1	— 16 9.7	. .	— 16 16.8
37	— 7.1	+ 16 9.7	. .	+ 16 2.6

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Oct. 31	1	ϕ Capricorni. . .	F.	29.8	32.6	34.2	40.7	42.9	45.0	51.7	53.0	55.9	8 42.87	— 0.39	. .	—19.92	21 8 22.56	— 1.93
	2	Anonymous . .	F.	11.5	14.7	16.6	24.6	27.0	29.8	37.5	39.4	42.7	16 27.09	+ 0.53	. .	—19.92	21 16 7.70	— 1.25
	3	33 Capricorni. . .	F.	. .	. .	. .	. .	. .	. .	25.0	26.7	29.3	17 16.24	— 0.39	. .	—19.92	21 16 56.93	— 1.98
	4	Anonymous . .	F.	. .	. .	2.6	4.6	6 6	8.9	11.0	. .	. .	25 6.74	— 0.28	. .	—19.92	21 24 46.54	— 1.93
	5	ε Capricorni. . .	F.	. .	. .	12.7	14.9	17.0	19.0	21.3	. .	. .	30 16.98	— 0.37	. .	—19.92	21 29 56.69	— 2.04
	6	ξ Aquarii . . .	F.	. .	. .	. .	. .	20.2	22.3	26.5	28.0	30.6	31 18.20	— 0.20	—19.93	—19.92	21 30 58.08	+ 0.03
	7	c^1 Capricorni. . .	F.	20.4	23.0	24.6	30.8	32.8	34.9	41.0	42.6	45.3	38 32.82	— 0.22	. .	—19.92	21 38 12.68	— 1.94
	8	B. A. C. 7602 . .	F.	6.0	9.2	11.2	19.0	21.6	24.2	32.0	33.9	37.3	43 21.60	+ 0.53	. .	—19.92	21 43 2.21	— 1.48
	9	B. A. C. 7620 . .	F.	55.0	57.6	59.3	5.4	7.4	9.5	15.8	17.4	19.9	47 7.48	— 0.24	. .	—19.92	21 46 47.32	— 2.00
	10	Weisse 1361 . .	F.	12.9	15.7	17.3	23.3	25.4	27.6	33.6	35.2	37.8	0 25.42	— 0.24	. .	—19.92	22 0 5.26	— 2.07
	11	Anonymous . .	F.	35.0	37.6	38.8	45.2	47.3	49.4	55.6	57.0	59.5	8 47.27	— 0.20	. .	—19.92	22 8 27.15	— 2.09
	12	θ Aquarii . . .	F.	14.7	17.2	18.7	24.9	27.0	29.0	35.2	36.7	39.2	10 26.96	— 0.20	—19.96	—19.92	22 10 6.84	+ 0.06
	13	Anonymous . .	F.	. .	. .	. .	. .	. .	. .	30.9	32.2	34.9	13 22.53	— 0.20	. .	—19.92	22 13 2.41	— 2.11
	14	Anonymous . .	F.	59.0	1.7	3.2	9.5	11.5	13.6	19.7	21.3	23.9	17 11.49	— 0.19	. .	—19.92	22 16 51.38	— 2.12
	15	B. A. C. 7835 . .	F.	20.6	23.3	24.9	31.0	33.2	35.2	41.6	43.1	45.8	23 33.19	— 0.27	. .	—19.92	22 23 13.00	— 2.22
	16	α Piscis Australis .	F.	43.3	46.2	48.0	55.0	57.4	59.8	7.0	8.8	11.9	50 57.39	— 0.55	—19.80	—19.92	22 50 36.92	— 0.08
	17	α Pegasi	F.	32.6	35.1	36.7	43.0	45.1	47.2	53.6	55.1	57.8	58 45.13	+ 0.12	—19.91	—19.92	22 58 25.33	+ 0.02
	18	ϕ Aquarii . . .	F.	. .	. .	0.0	2.0	4.2	6.3	8.2	. .	. .	8 4.14	— 0.18	. .	—19.92	23 8 44.04	— 2.35
	19	ψ^3 Aquarii . . .	F.	28.3	30.9	32.5	38.6	40.7	42.8	49.0	50.6	53.2	12 40.73	— 0.23	. .	—19.92	23 12 20.58	— 2.40
	20	γ Cephei, (R.) . .	F.	. .	. .	12.1	21.6	30.6	40.2	49.0	. .	. .	34 30.70	— 0.04	. .	—19.92	23 34 10.74	+ 0.28
	21	ω Piscium . . .	F.	54.6	57.0	58.6	4.8	6.8	8.9	15.0	16.6	19.0	53 6.81	0.00	—19.97	—19.92	23 52 46.89	+ 0.06
	22	α Andromedæ, (R.) .	F.	. .	. .	. .	10.0	12.2	14.4	19.0	20.8	23.8	2 9.83	— 0.69	. .	—19.92	0 1 49.22	+ 0.24
	23	κ Draconis, S. P. .	F.	58.6	50.7	46.1	33.9	27.6	22.7	. .	. .	. .	28 21.83	— 2.14	. .	—19.92	12 27 59.77	+ 0.42
	24	β Ceti	F.	20.0	22.8	24.2	30.7	32.8	35.0	41.4	43.0	45.8	37 32.86	— 0.35	—19.93	—19.92	0 37 12.59	+ 0.06
	25	ε Piscium . . .	F.	28.5	31.0	32.5	38.5	40.6	42.6	49.0	50.4	53.0	56 40.68	+ 0.02	—19.90	—19.92	0 56 20.78	0.00
	26	Polaris	F.	. .	. .	. .	. .	36.5	1.5	25.0	. .	. .	12 36.00	. .	. .	. .	. . . .	. .
	27	θ^1 Ceti	F.	48.0	50.7	52.3	58.3	0.5	2.6	8.6	10.2	13.0	18 0.47	— 0.21	—19.94	—19.91	1 17 40.35	+ 0.05
	28	η Piscium . . .	F.	48.0	50.8	52.3	58.6	0.8	2.9	9.3	10.8	13.4	25 0.77	+ 0.13	—19.91	—19.91	1 24 40.99	+ 0.07
	29	α Ursæ Majoris .	S.	. .	. .	59.2	3.7	8.0	12.4	16.8	. .	. .	56 8.02	+ 1.32	. .	—19.96	10 55 49.38	— 0.08
	30	δ Leonis	S.	25.2	28.0	29.6	36.2	38.5	40.7	47.2	48.9	51.5	7 38.42	+ 0.22	—19.83	—19.96	11 7 18.68	— 0.19
	31	Polaris, S. P. . .	S.	. .	1.0	36.5	13.0	44.0	. .	55.0	49.5	3.5	13 36.40	. .	. .	. .	. . . .	. .
	32	α Virginis . . .	S.	35.0	37.7	39.3	45.5	47.5	49.6	56.0	57.5	0.0	18 47.57	— 0.21	—19.93	—19.97	13 18 27.39	— 0.06
	33	π Capricorni. . .	S.	8.7	11.4	13.0	19.6	21.6	23.7	30.3	31.8	34.4	20 21.61	— 0.33	—20.10	—19.99	20 20 1.29	+ 0.14
	34	ε Delphini . . .	S.	. .	. .	23.0	25.0	27.1	29.2	31.3	. .	. .	27 27.12	+ 0.08	—20.04	—19.99	20 27 7.11	+ 0.10
Nov. 1	35	XX, 14. . . .	S.	6.0	8.9	10.6	17.4	19.6	21.9	28.8	30.5	33.2	43 19.66	— 0.43	. .	—20.00	20 42 59.23	— 1.48
	36	XX, 19. . . .	S.	. .	. .	28.5	30.8	33.2	35.5	37.7	. .	. .	49 33.14	— 0.46	. .	—20.00	20 49 12.68	— 1.83
	37	χ Capricorni. . .	S.	22.7	25.5	27.2	33.7	35.8	38.1	44.6	46.3	49.0	1 35.88	— 0.37	. .	—20.00	21 1 15.51	— 1.89
	38	ϕ Capricorni. . .	S.	29.8	32.6	34.2	40.7	43.0	45.0	51.7	53.2	55.9	8 42.90	— 0.36	. .	—20.00	21 8 22.54	— 1.92
	39	B. A. C. 7430 . .	S.	. .	. .	27.6	31.7	35.9	39.9	44.0	. .	. .	17 35.82	+ 1.20	. .	—20.00	21 17 17.02	— 0.74
	40	Anonymous . .	S.	54.2	56.9	58.5	4.7	6.8	9.0	15.3	16.9	19.5	25 6.87	— 0.26	. .	—20.00	21 24 46.61	— 1.91
	41	ε Capricorni. . .	S.	4.0	6.8	8.5	15.0	17.0	19.2	25.8	27.4	30.2	30 17.10	— 0.35	. .	—20.00	21 29 56.75	— 2.02
	42	κ Capricorni. . .	S.	39.8	42.8	44.2	50.8	53.0	55.0	1.7	3.2	6.0	35 52.94	— 0.34	. .	—20.00	21 35 32.60	— 1.94
	43	B. A. C. 7602 . .	S.	6.1	9.4	11.3	19.2	21.8	24.4	32.0	34.0	37.4	43 21.73	+ 0.52	. .	—20.00	21 43 2.25	— 1.45
	44	79 Draconis, (R.) . .	S.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	45	Weisse 1361 . .	S.	13.0	15.7	17.2	23.4	25.6	27.6	33.9	35.4	38.0	0 25.63	— 0.22	. .	—20.00	22 0 5.31	— 2.06
	46	Groom. 1620, S.P..	S.	. .	. .	58.0	32.8	10.3	47.8	25.4	. .	. .	11 10.86	— 7.20	. .	—20.00	10 10 43.66	— 2.74
	47	Anonymous . .	S.	59.3	1.8	3.3	9.5	11.7	13.6	19.9	21.4	23.9	17 11.60	— 0.17	. .	—20.00	22 16 51.43	— 2.11
	48	Groombridge 3820	S.	. .	. .	. .	55.3	22.0	48.4	14.5	. .	. .	23 22.06	+ 8.00	. .	—20.00	22 23 10.06	— 1.44
	49	ζ Pegasi	S.	. .	. .	22.6	24.7	26.8	28.8	30.9	. .	. .	35 26.76	+ 0.06	—20.06	—20.00	22 35 6.82	+ 0.12
	50	70 Aquarii . . .	S.	56.0	58.8	0.3	6.5	8.5	10.7	17.0	18.5	21.0	42 8.59	— 0.22	. .	—20.00	22 41 48.37	— 2.27

1. Wire A used.
2. Bisections at wires II–V.
20, 23, 39, 44, 49. Bisections at sets B and D.
46, 48. Bisections at set C.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	299 50	6.5	2.5	0.6	27.0	33	. .	. .	. .	360	354	59.2	60 2 46.1	. .	+ 1 44.7	111 10 52.0	+ 3.5
2	359 26	5.7	4.2	2.8	26.5	36	. .	430	. .	478	. .	59.2	0 30 9.0	. .	+ 0.5	51 36 30.7	+21.8
3	299 40	9 23.8	19.7	17.7	14.4	34	. .	. .	. .	980	980	59.2	60 15 32.5	. .	+ 1 43.2	111 23 36.9	+ 3.8
4	307 0	2.4	29.4	26.5	23.6	36	. .	. .	. .	180	. .	59.2	52 56 0.2	. .	+ 1 18.2	104 3 39.6	+ 6.8
5																	
6	312 38	11.1	7.5	5.5	1.7	35	. .	. .	. .	890	890	59.2	47 18 4.2	. .	+ 1 4.1	98 25 29.5	+ 2.2
7	311 24	5.5	0.7	29.5	26.0	38	. .	258	. .	190	. .	59.2	48 32 34.1	. .	+ 1 7.0	99 40 2.3	+ 8.9
8	359 24	2.7	0.2	28.0	21.9	34	. .	. .	. .	252	268	59.2	0 31 31.4	. .	+ 0.5	51 37 53.1	+22.7
9	310 8	0.7	27.4	25.4	22.2	32	. .	. .	. .	956	952	59.2	49 47 9.0	916	+ 1 10.0	100 54 40.2	+ 8.8
10	310 2	9.1	6.2	3.6	0.7	36	. .	468	. .	470	. .	59.2	49 54 11.6	. .	+ 1 10.4	101 1 43.2	+ 9.4
11	312 22	6.0	2.1	0.4	27.0	34	. .	470	. .	466	. .	59.2	47 33 37.4	. .	+ 1 4.8	98 41 3.4	+10.5
12	312 38	8.0	3.5	2.7	28.4	34	. .	210	. .	216	. .	59.2	47 17 35.2	. .	+ 1 4.3	98 25 0.7	+ 0.9
13	312 44	9 29.2	25.9	24.6	21.0	35	. .	. .	. .	546	536	59.2	47 11 47.6	. .	+ 1 4.1	98 19 12.9	+10.8
14	313 12	4.2	0.7	29.2	25.3	31	. .	676	. .	668	. .	59.2	46 42 52.9	. .	+ 1 3.0	97 50 17.1	+11.1
15	307 30	9 29.3	24.4	22.8	20.1	37	. .	. .	. .	998	006	59.2	52 26 24.3	924	+ 1 17.1	103 34 2.6	+ 9.5
16	290 46	3.0	28.7	25.8	23.5	32	. .	212	. .	200	. .	59.2	69 8 58.9	. .	+ 2 35.0	120 17 55.1	+ 1.3
17	335 34	3.2	0.4	28.9	22.2	35	. .	656	. .	656	. .	59.2	24 21 53.1	. .	+ 26.9	75 28 41.2	+ 2.4
18	314 18	12.8	9.6	8.0	4.0	30	. .	580	. .	566	. .	59.2	45 36 44.9	. .	+ 1 0.7	96 44 6.8	+13.3
19	310 44	2.2	28.4	25.5	23.2	31	. .	958	. .	952	. .	59.2	49 10 54.7	. .	+ 1 8.8	100 18 24.7	+12.4
20	141 54	4.0	0.2	28.8	26.0	32	. .	. .	. .	420	430	59.2	218 1 4.2	. .	+ 46.5	13 4 30.5	+ 0.6
21	327 12	9 29.7	25.5	22.7	20.2	34	. .	240	. .	238	. .	59.2	32 43 27.1	934	+ 38.3	83 50 26.6	+ 1.7
22	190 28	2.7	29.2	27.0	22.0	43	. .	. .	. .	. .	514	59.2	169 29 52.2	. .	— 11.1	61 36 40.1	+ 3.7
23	70 30	9 27.8	24.4	22.8	18.7	35	716	722	. .	. .	. .	59.2	289 25 48.6	. .	— 2 47.8	340 29 22.0	+ 3.6
24	302 22	9 28.3	22.0	21.6	18.2	33	. .	538	. .	522	. .	59.2	57 33 19.0	940	+ 1 33.8	108 41 14.0	+ 5.3
25	328 14	6.2	3.1	1.0	26.4	30	824	824	. .	. .	. .	59.2	31 40 41.9	940	+ 36.9	82 47 40.0	+ 0.2
26	49 38	6.2	4.0	3.5	27.0	31	. .	. .	500	500	496	59.2	310 16 53.3	. .	— 1 10.4	1 22 4.1	— 0.6
27	312 12	5.0	0.7	29.0	25.4	32	. .	080	. .	080	. .	59.2	47 42 59.4	. .	+ 1 5.6	98 50 26.2	+ 2.9
28	335 44	5.5	0.5	0.5	23.2	35	. .	240	. .	238	. .	59.2	24 11 47.9	940	+ 26.8	75 18 35.9	+ 2.3
29	23 28	9.3	7.4	2.7	28.5	35	. .	. .	. .	430	. .	58.2	336 27 52.4	905	— 25.7	27 33 47.9	— 3.7
30	342 16	17.2	14.5	8.9	5.6	35	. .	227	. .	271	. .	58.2	17 39 58.7	. .	+ 18.8	68 46 38.7	— 0.5
31	52 24	11.2	10.0	6.0	2.3	38	. .	. .	848	858	886	58.2	307 32 49.8	839	— 1 15.6	358 37 55.4	— 0.1
32	310 34	13.1	9.5	5.9	3.3	36	. .	080	. .	062	. .	58.2	49 22 7.5	. .	+ 1 7.8	100 29 36.5	+ 1.3
33	302 26	14.1	10.2	8.5	4.1	34	. .	971	. .	967	. .	58.2	57 29 51.8	. .	+ 1 31.5	108 37 44.5	+ 1.8
34	331 54	9.8	7.4	5.4	29.8	30	. .	. .	. .	823	781	58.2	28 0 44.4	857	+ 31.1	79 7 36.7	+ 0.9
35	295 36	15.0	11.2	8.2	4.4	30	. .	772	. .	822	. .	58.2	64 18 48.3	. .	+ 2 1.0	115 27 10.5	+ 0.7
36	294 18	6.0	3.0	0.0	27.2	37	. .	. .	. .	764	768	58.2	65 38 26.9	. .	+ 2 8.4	116 46 56.5	+ 0.6
37	299 22	9.5	6.2	3.4	0.6	36	. .	716	. .	710	. .	58.2	60 34 14.3	863	+ 1 43.4	111 42 18.9	+ 2.9
38	299 52	10.7	6.5	5.0	0.7	30	. .	963	. .	971	. .	58.2	60 2 46.9	. .	+ 1 41.3	111 10 49.4	+ 3.4
39	21 14	13.0	11.5	9.0	3.5	30	878	. .	. .	. .	908	58.2	338 40 49.6	. .	— 22.9	29 46 47.9	+24.9
40	307 0	13.5	11.0	8.5	4.9	35	. .	390	. .	398	. .	58.2	52 55 58.6	873	+ 1 17.5	104 3 37.3	+ 6.7
41	301 2	13.4	8.6	6.5	3.4	36	. .	508	. .	470	. .	58.2	58 54 13.9	. .	+ 1 37.0	110 2 12.1	+ 4.9
42	301 38	10.5	6.0	3.8	1.1	39	. .	260	. .	224	. .	58.2	58 18 53.6	. .	+ 1 34.9	109 26 49.7	+ 5.3
43	359 24	11.0	8.6	6.5	0.4	33	. .	706	. .	704	. .	58.2	0 31 30.2	880	+ 0.5	51 37 51.9	+22.7
44	145 44	12.4	8.0	7.9	4.5	35	. .	. .	282	380	380	58.2	214 11 56.6	. .	+ 39.9	16 53 44.7	— 0.8
45	310 2	15.4	11.6	9.3	6.0	36	. .	238	. .	202	. .	58.2	49 54 12.4	. .	+ 1 9.8	101 1 43.4	+ 9.3
46	56 6	19.9	18.7	16.0	11.5	29	. .	938	938	910	. .	58.2	303 48 41.9	. .	— 1 27.6	354 53 35.5	+24.8
47	313 12	12.0	8.3	7.0	3.0	31	. .	267	. .	247	. .	58.2	46 42 53.3	886	+ 1 2.5	97 50 17.0	+11.0
48	46 28	1.4	1.0	28.2	23.6	30	. .	355	348	360	. .	58.2	313 26 30.5	. .	— 1 2.2	4 31 49.5	+25.8
49	331 12	14.7	12.1	8.6	3.8	31	435	. .	. .	. .	473	58.2	28 42 58.6	. .	+ 32.3	79 49 52.1	+ 0.1
50	309 50	9.1	5.7	3.5	0.0	36	. .	340	. .	342	. .	58.2	50 6 8.3	. .	+ 1 10.5	101 13 40.0	+10.9

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
9	. .	. .	41.5
15	. .	. .	40.2
21	. .	. .	38.5
24	. .	. .	37.0
28	29.966	43.0	37.2
37	30. 07	52.0	49.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s	s.
Nov. 1	1	α Piscis Australis .	S.	43.3	46.3	48.0	55.1	57.5	59.7	7.0	8.8	11.8	50 57.50	− 0.52	−19.95	−20.00	22 50 36.98	− 0.01
	2	α Pegasi	S.	32.6	35.2	36.8	43.2	45.3	47.3	53.7	55.2	57.8	58 45.23	+ 0.13	−20.03	−20.00	22 58 25.36	+ 0.06
3	3	12 Canum Venat. .	F.	. .	. .	19.6	22.0	24.8	27.2	32.6	34.6	37.8	50 22.08	+ 0.57	−20.18	−20.03	12 50 2.62	+ 0.15
	4	Polaris, S.P. . .	F.	. .	. .	27.0	2.0	37.0	13.0	48.0	. .	. .	13 37.40	−33.36	. .	. .	. . . .	. .
	5	α Virginis . . .	F.	35.2	38.0	39.5	45.7	47.8	50.0	56.0	57.6	0.1	18 47.77	− 0.28	−20.00	−20.03	13 18 27.46	− 0.05
	6	ζ Virginis . . .	F.	. .	. .	. .	31.3	33.2	35.0	39.3	40.6	43.3	28 31.09	− 0.12	−20.28	−20.03	13 28 10.94	+ 0.25
	7	η Ursæ Majoris . .	F.	33.7	35.9	42.2	45.2	48.8	51.8	55.0	1.5	3.9	42 48.67	+ 0.88	. .	−20.03	13 42 29.52	+ 0.20
	8	η Bootis	F.	42.6	45.3	46.9	53.4	55.6	57.7	4.4	5.9	8.7	48 55.61	+ 0.18	−20.17	−20.03	13 48 35.76	+ 0.09
	9	α Bootis	F.	56.5	59.2	0.9	7.3	9.7	11.8	18.1	19.8	22.5	10 9.53	+ 0.19	−20.21	−20.03	14 9 49.69	+ 0.18
4	10	Sun I, S. . . .	F.	39.5	42.1	44.0	50.4	52.4	54.6	1.0	2.5	5.0	39 52.39	− 0.37	. .	−20.03	14 39 31.99	. .
	11	Sun II, N. . . .	F.	54.3	57.0	58.6	4.9	6.9	9.0	15.8	17.3	19.7	42 7.05	− 0.37	. .	−20.03	14 41 46.65	. .
	12	Moon I. . . .	F.	23.8	26.7	28.5	35.5	37.8	40.0	47.0	49.0	52.0	54 37.81	− 0.57	. .	−20.03	17 54 17.21	+74.84
	13	γ^2 Sagittarii . . .	F.	42.6	45.4	47.3	54.3	56.5	59.0	6.0	7.9	10.9	57 56.66	− 0.66	−19.94	−20.03	17 57 35.97	− 0.08
	14	η Serpentis . . .	F.	49.9	52.5	54.0	0.1	2.2	4.2	10.4	11.8	14.5	15 2.18	− 0.16	−20.11	−20.03	18 14 41.99	+ 0.14
	15	α Lyræ	F.	. .	. .	. .	55.9	58.5	1.0	6.4	8.3	11.5	32 55.85	+ 0.56	−20.11	−20.03	18 32 36.38	+ 0.10
	16	Weisse 1361 . .	F.	. .	. .	21.4	23.6	25.5	27.5	29.6	. .	. .	0 25.52	− 0.28	. .	−20.03	22 0 5.21	− 2.02
	17	Schjellerup 9030 .	F.	. .	. .	. .	. .	15.8	17.9	22.0	23.5	26.0	2 13.66	− 0.27	. .	−20.03	22 1 53.36	− 2.02
	18	Anonymous . .	F.	. .	. .	. .	. .	. .	. .	55.6	57.0	59.5	8 47.21	− 0.24	. .	−20.03	22 8 26.94	− 2.04
	19	Anonymous . .	F.	. .	. .	. .	. .	. .	. .	30.9	32.2	34.8	13 22.48	− 0.24	. .	−20.03	22 13 2.21	− 2.06
	20	Anonymous . .	F.	59.0	1.7	3.3	9.3	11.5	13.5	19.6	21.2	23.7	17 11.42	− 0.23	. .	−20.03	22 16 51.16	− 2.07
	21	τ^2 Aquarii. . . .	F.	58.8	1.3	3.0	9.2	11.4	13.4	19.8	21.3	24.0	43 11.36	− 0.33	. .	−20.03	22 42 51.00	− 2.27
	22	α Piscis Australis .	F.	43.2	46.3	47.9	55.0	57.4	59.6	7.0	8.6	11.5	50 57.39	− 0.61	−19.79	−20.03	22 50 36.75	− 0.17
	23	O. Arg. S. 22712 .	F.	3.3	6.0	7.7	14.4	16.6	18.8	25.5	27.0	29.8	9 16.57	− 0.48	. .	−20.03	23 8 56.06	− 2.50
	24	9 Piscium . . .	F.	51.6	54.0	55.6	1.6	3.7	5.7	11.9	13.3	15.9	21 3.70	− 0.11	. .	−20.03	23 20 43.56	− 2.31
	25	16 Piscium . . .	F.	1.5	4.0	5.6	11.7	13.9	15.9	22.0	23.4	26.0	30 13.78	− 0.10	. .	−20.03	23 29 53.65	− 2.35
	26	ι Piscium . . .	F.	32.0	34.7	36.0	42.4	44.4	46.3	52.7	54.2	56.7	33 44.38	− 0.04	−19.89	−20.03	23 33 24.31	− 0.14
	27	λ Piscium . . .	F.	41.0	43.6	45.2	51.3	53.3	55.4	1.5	3.0	5.5	35 53.31	− 0.10	. .	−20.03	23 35 33.28	− 2.37
	28	21 Piscium . . .	F.	4.4	7.0	8.6	14.7	16.7	18.7	24.7	26.3	28.9	43 16.67	− 0.11	. .	−20.03	23 42 56.53	− 2.41
	29	ω Piscium . . .	F.	54.5	57.0	58.5	4.7	6.8	8.8	15.0	16.4	19.0	53 6.74	− 0.03	−19.90	−20.03	23 52 46.68	− 0.12
	30	33 Piscium . . .	F.	57.2	59.9	1.3	7.6	9.6	11.7	17.9	19.2	22.0	59 9.60	− 0.21	. .	−20.03	23 58 49.36	− 2.52
	31	γ Pegasi	F.	48.5	51.0	52.6	59.1	1.0	3.2	9.6	11.0	13.7	7 1.08	+ 0.10	−19.91	−20.03	0 6 41.15	− 0.12
	32	44 Piscium . . .	F.	0.8	3.5	4.9	11.0	13.0	15.0	21.3	22.7	25.4	19 13.07	− 0.10	. .	−20.03	0 18 52.94	− 2.56
	33	51 Piscium . . .	F.	57.9	0.4	2.0	8.1	10.1	12.0	18.4	20.0	22.5	26 10.16	− 0.02	. .	−20.03	0 25 50.11	− 2.57
	34	Polaris. . . .	F.	. .	. .	39.0	5.0	31.0	56.0	22.0	. .	. .	12 30.60	+33.88	. .	−20.03	1 11 44.45	− 2.19
	35	θ^1 Ceti. . . .	F.	48.0	50.8	52.3	58.5	0.6	2.5	8.6	10.2	12.7	18 0.47	− 0.24	−19.91	−20.03	1 17 40.20	− 0.10
	36	η Piscium . . .	F.	. .	. .	56.8	58.9	1.0	3.0	5.2	. .	. .	25 0.98	+ 0.10	−20.08	−20.03	1 24 41.05	+ 0.12
	37	Neptune . . .	F.	9.6	12.2	13.9	20.1	22.3	24.0	30.2	31.8	34.6	32 22.08	0.00	. .	−20.03	1 33 2.05	. .
6	38	α Bootis	E.	56.5	59.3	0.9	7.4	9.6	11.7	18.3	19.9	22.6	10 9.58	+ 0.17	−20.21	−20.19	14 9 49.56	+ 0.02
7	39	Sun I, N. . . .	E.	38.0	40.6	42.2	48.7	50.8	53.0	59.2	0.9	3.7	49 50.79	− 0.28	. .	−20.19	14 49 30.32	. .
	40	Sun II, S. . . .	E.	53.0	56.0	57.7	4.0	6.1	8.3	14.9	16.4	19.0	52 6.16	− 0.28	. .	−20.19	14 51 45.69	. .
	41	Mercury I, C. . .	E.	. .	. .	4.0	6.2	8.4	10.6	12.7	. .	. .	52 8.38	− 0.36	. .	−20.19	15 51 47.83	+ 0.18
	42	δ Ophiuchi . . .	E.	46.6	49.0	50.7	56.8	58.9	1.0	7.0	8.6	11.0	8 8.84	− 0.11	−20.02	−20.19	16 7 38.54	− 0.15
	43	τ Herculis . . .	E.	54.6	58.5	0.6	9.5	12.4	15.5	24.5	26.6	30.4	16 12.51	+ 0.41	. .	−20.19	16 15 52.73	− 0.01
	44	α Scorpii	E.	41.0	43.9	45.5	52.0	. .	57.0	3.8	5.8	8.5	21 54.69	− 0.42	−20.08	−20.19	16 21 34.08	− 0.12
	45	η Herculis . . .	E.	34.0	37.0	39.2	47.2	49.8	52.5	0.3	2.3	5.5	38 49.76	+ 0.47	−20.15	−20.19	16 38 30.04	− 0.03
	46	Venus I, N. . .	E.	11.7	14.5	16.3	23.0	25.1	27.5	34.4	35.8	38.8	56 25.23	− 0.39	. .	−20.19	16 56 4.65	+ 0.44
	47	Venus, S. . . .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	48	α^1 Herculis . . .	E.	56.3	59.0	0.6	6.8	9.0	11.0	17.5	19.0	21.6	9 8.98	+ 0.11	−20.14	−20.18	17 8 48.91	− 0.02

21. Telescope micrometer reading increased one revolution in reduction.
23. Bisections at wires B_3 and D_1.
28. Telescope micrometer reading decreased one revolution in reduction.
30. Wire A used.
47. Bisections at wires V and VI.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	290 46	16.3	13.1	10.0	7.6	31	. .	. .	. .	350	478	58.2	69 8 59.5	894	+ 2 23.8	120 17 54.5	+ 0.5
2	335 34	14.8	12.5	10.5	4.6	34	. .	840	. .	860	. .	58.2	24 21 51.6	. .	+ 26.8	75 28 39.6	+ 0.7
3	0 2	2.6	1.1	28.0	28.2	33	. .	. .	. .	252	260	58.1	359 53 16.7	904	— 0.1	50 59 37.8	+ 1.9
4	52 22	2.1	0.8	29.2	24.0	31	726	718	740	740	740	58.1	307 32 51.8	. .	— 1 16.2	358 37 56.8	+ 0.6
5	310 34	3.5	29.2	28.9	25.2	36	. .	580	. .	572	. .	58.1	49 22 6.5	896	+ 1 8.2	100 29 35.9	+ 0.4
6	321 6	1.1	27.0	26.0	22.6	33	. .	. .	. .	948	938	58.1	38 49 23.5	892	+ 47.1	89 56 31.8	+ 1.6
7	11 0	4.6	2.7	2.3	25.6	39	. .	560	. .	470	. .	58.1	348 56 54.2	. .	— 11.4	40 3 4.0	+ 2.1
8	340 4	3.4	0.0	0.2	23.6	32	. .	. .	. .	276	284	58.1	19 51 0.7	884	+ 21.1	70 57 43.0	+ 1.5
9	340 54	4.1	29.7	29.6	24.1	37	. .	930	. .	936	. .	58.1	19 2 27.7	876	+ 20.2	70 9 9.1	+ 1.5
10	305 10	7.3	5.3	2.8	0.2	38	510	526	. .	. .	. .	58.1	54 46 41.4	. .	+ 1 22.4	105 54 25.0	
11	305 42	6.8	3.5	2.5	29.8	37	. .	. .	. .	376	384	58.1	54 14 22.2	864	+ 1 20.8	105 22 4.2	
12																	
13	290 38	1.5	26.7	25.3	24.3	30	. .	. .	. .	780	776	58.1	69 16 34.9	. .	+ 2 32.8	120 25 28.9	+ 0.3
14	318 8	12.5	9.5	3.0	5.0	37	. .	850	. .	860	. .	58.1	41 48 34.5	860	+ 52.1	92 55 47.8	+ 2.7
15	359 42	5.7	3.6	1.7	28.1	34	. .	. .	. .	050	040	58.1	0 13 31.1	860	+ 0.2	51 19 52.5	+ 1.8
16	310 2	13.6	9.8	7.5	4.0	36	. .	. .	. .	270	262	58.3	49 54 11.3	. .	+ 1 10.9	101 1 43.4	+ 9.1
17	310 48	6.4	2.0	29.8	26.1	36	. .	. .	. .	868	860	58.3	49 8 12.8	940	+ 1 9.0	100 15 43.0	+ 9.4
18	312 22	5.7	1.7	29.0	25.3	34	. .	. .	. .	542	554	58.3	47 33 36.6	. .	+ 1 5.3	98 41 3.1	+10.2
19	312 44	13.0	8.5	6.8	2.6	34	. .	. .	. .	666	680	58.3	47 11 45.8	. .	+ 1 4.5	98 19 11.5	+10.6
20	313 12	9.2	4.7	3.0	28.1	31	. .	422	. .	444	. .	58.3	46 42 52.3	. .	+ 1 3.4	97 50 16.9	+10.9
21	306 48	9.3	5.3	3.6	29.3	35	. .	608	. .	620	. .	58.3	53 8 12.4	. .	+ 1 19.8	104 15 53.4	+ 9.8
22	290 46	6.3	2.3	29.5	25.5	32	. .	050	. .	050	. .	58.3	69 8 58.7	. .	+ 2 36.2	120 17 56.1	+ 1.7
23	298 6	6.9	2.5	0.9	27.4	32	950	. .	950	. .	. .	58.3	61 49 13.7	. .	+ 1 51.6	112 57 26.5	+ 8.1
24	321 28	14.5	10.0	9.4	3.6	33	. .	190	. .	186	. .	58.3	38 27 24.8	950	+ 47.7	89 34 33.7	+15.5
25	322 26	5.5	0.6	28.5	23.3	32	. .	512	. .	524	. .	58.3	37 29 4.7	. .	+ 46.0	88 36 11.9	+16.0
26	325 58	5.7	1.7	0.2	24.6	31	076	072	. .	. .	. .	58.3	33 56 43.7	. .	+ 40.4	85 3 45.3	+ 0.3
27	322 8	11.2	7.0	5.5	0.6	36	. .	000	. .	000	. .	58.3	37 48 4.7	. .	+ 46.6	88 55 12.5	+16.0
28	321 24	12.0	7.4	5.5	0.5	31	. .	310	. .	342	. .	58.3	38 30 38.2	. .	+ 47.8	89 37 47.2	+16.0
29	327 12	7.5	3.5	0.7	26.7	33	. .	760	. .	740	. .	58.3	32 43 26.2	. .	+ 38.6	83 50 26.0	+ 1.0
30	314 36	7.6	3.8	2.5	28.9	37	. .	370	. .	324	. .	58.3	45 17 45.4	. .	+ 1 0.7	96 25 7.3	+14.6
31	335 30	7.1	4.2	3.4	25.9	30	. .	260	. .	284	. .	58.3	24 24 33.5	. .	+ 27.3	75 31 22.0	+ 1.0
32	322 16	6.6	2.8	0.6	27.2	31	. .	. .	. .	090	. .	58.3	37 38 45.0	. .	+ 46.4	88 45 52.6	+16.9
33	327 18	8.9	5.1	3.5	28.5	35	. .	114	. .	130	. .	58.3	32 37 49.2	960	+ 38.6	83 44 49.0	+18.0
34	49 38	11.0	8.5	8.0	1.4	31	145	150	150	150	156	58.3	310 16 51.6	970	— 1 11.2	1 22 1.6	— 2.6
35	312 12	4.0	0.0	28.0	24.8	32	. .	162	. .	160	. .	58.3	47 42 58.9	. .	+ 1 6.4	98 50 26.5	+ 2.8
36	335 44	2.8	28.7	28.2	22.0	35	. .	. .	. .	345	340	58.3	24 11 46.5	. .	+ 27.2	75 18 34.9	+ 1.5
37	328 52	9.0	5.1	4.1	29.0	35	. .	968	. .	968	. .	58.3	31 4 2.5	974	+ 36.5	82 11 0.2	
38	340 54	1.3	29.7	28.7	20.6	38	. .	210	. .	200	. .	56.6	19 2 28.5	810	+ 19.8	70 9 9.5	+ 1.1
39	304 46	13.1	8.4	7.8	2.8	28	125	165	. .	. .	. .	56.6	55 8 4.9	. .	+ 1 21.7	106 15 47.8	
40	304 14	9.6	7.0	7.5	2.5	29	. .	. .	. .	740	760	56.6	55 40 27.1	795	+ 1 23.3	106 48 11.6	
41	299 4	7.3	6.2	4.5	0.0	37	. .	370	. .	300	. .	56.6	60 52 21.8	. .	+ 1 41.4	112 0 24.4	
42	317 42	6.8	5.0	4.5	28.6	38	. .	620	. .	640	. .	56.6	42 14 41.1	. .	+ 51.4	93 21 53.7	+ 5.6
43	7 40	11.3	11.3	9.5	2.1	38	. .	280	. .	260	. .	56.6	352 16 40.7	. .	— 7.7	43 22 54.2	+ 3.3
44	294 56	18.0	16.7	13.5	10.6	37	. .	370	. .	310	. .	56.6	65 0 32.1	. .	+ 2 0.7	116 8 54.0	+ 5.0
45	0 12	8.5	9.0	5.8	0.0	34	. .	410	. .	450	. .	56.6	359 43 38.9	762	— 0.3	50 49 59.8	+ 3.7
46	297 14	5.8	4.0	4.0	27.8	37	210	160	. .	. .	. .	56.6	62 42 18.1	. .	+ 1 49.0	113 50 28.3	
47	297 14	5.8	4.0	4.0	27.8	38	. .	. .	. .	150	130	56.6	62 42 32.5	. .	+ 1 49.0	113 50 42.7	
48	335 36	14.5	14.4	12.7	4.3	39	. .	115	. .	065	. .	56.6	24 20 56.0	. .	+ 25.6	75 27 42.8	+ 2.4

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
2	. .	. .	43.8
3	30.280	48.5	50.3
11	30.276	52.0	54.5
15	30.256	54.3	54.3
17	30.300	47.5	42.5
37	30.304	44.0	36.5
38	29.725	53.5	53.5
40	29.700	54.5	55.5
45	29.685	81.0	59.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
10	— 7.3	— 16 10.4	. .	— 16 17.7
11	— 7.3	+ 16 10.4	. .	+ 16 3.1
37	— 0.2	. .	. .	— 0.2
39	— 7.3	+ 16 11.9	. .	+ 16 4.5
40	— 7.4	— 16 11.9	. .	— 16 19.3
41	— 5.9	. .	+ 0.1	— 5.8
46	— 5.6	+ 7.2	. .	+ 1.6
47	— 5.6	— 7.2	. .	— 12.8

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Nov. 7	1	α Ophiuchi . . .	E.	7.4	10.0	11.7	17.9	20.0	22.0	28.4	30.0	32.6	29 20.00	+ 0.08	—20.14	—20.18	17 28 59.90	— 0.01
	2	ζ Cygni	E.	. .	. .	45.6	48.1	50.4	52.7	55.0	. .	. .	7 50.36	+ 0.32	—20.17	—20.18	21 7 30.70	+ 0.20
	3	Moon, S. . . .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . .	. .
	4	34 Vulpeculæ. . .	E.	. .	. .	. .	38.6	40.7	43.0	47.5	49.2	52.0	15 38.58	+ 0.23	. .	—20.18	21 15 18.63	— 1.32
	5	33 Capricorni . . .	E.	. .	. .	. .	16.2	18.4	20.7	25.0	26.7	29.4	17 16.24	— 0.34	. .	—20.18	21 16 55.72	— 1.88
	6	Anonymous . .	E.	54.4	56.8	58.5	4.8	7.0	9.0	15.3	17.0	19.5	25 6.92	— 0.24	. .	—20.18	21 24 46.50	— 1.83
	7	B. A. C. 7524 . .	E.	. .	. .	52.8	55.5	58.0	0.7	3.3	. .	. .	32 58.06	+ 0.47	. .	—20.18	21 32 38.35	— 1.23
	8	κ Capricorni . .	E.	40.0	42.7	44.3	50.8	52.9	55.0	1.5	3.3	6.0	35 52.94	— 0.31	. .	—20.18	21 35 32.45	— 1.96
	9	λ Capricorni . .	E.	48.4	51.0	52.5	58.7	0.9	3.0	9.3	10.8	13.5	40 0.90	— 0.21	. .	—20.18	21 39 40.51	— 1.89
	10	μ Capricorni . .	E.	28.6	31.4	33.0	39.3	41.4	43.4	49.8	51.4	54.0	46 41.37	— 0.24	—20.20	—20.18	21 46 20.95	+ 0.05
	11	79 Draconis, (R.) .	E.	. .	. .	24.4	31.1	38.0	. .	52.0	. .	. .	51 38.20	— 0.61	. .	—20.18	21 51 17.41	+ 0.60
	12	α Aquarii. . . .	E.	22.4	25.0	26.5	32.6	34.8	36.8	42.9	44.5	47.0	59 34.72	— 0.07	—20.22	—20.18	21 59 14.47	+ 0.07
	13	Schjellerup 9030 .	E.	1.1	3.9	5.4	11.6	13.7	15.7	22.0	23.7	26.3	2 13.71	— 0.19	. .	—20.18	22 1 53.34	— 1.97
	14	Anonymous . .	E.	35.0	37.5	39.2	45.2	47.4	49.4	55.5	57.2	59.6	8 47.33	— 0.17	. .	—20.18	22 8 26.98	— 2.00
	15	Anonymous . .	E.	10.3	12.9	14.4	20.6	22.6	24.5	30.8	32.5	35.2	13 22.64	— 0.17	. .	—20.18	22 13 2.29	— 2.02
	16	51 Aquarii. . . .	E.	36.8	39.4	41.0	47.0	49.0	51.0	57.2	58.9	1.4	17 49.08	— 0.13	. .	—20.18	22 17 28.77	— 2.01
	17	B. A. C. 7835 . .	E.	20.6	23.3	24.9	31.2	33.3	35.4	41.6	43.4	46.0	23 33.50	— 0.23	. .	—20.18	22 23 12.89	— 2.13
	18	η Aquarii. . . .	E.	56.8	59.4	1.0	7.0	9.0	11.0	17.3	18.8	21.4	29 9.08	— 0.07	—20.26	—20.18	22 28 48.83	+ 0.11
	19	ζ Pegasi	E.	14.3	16.9	18.5	24.8	27.0	29.0	35.2	36.9	39.4	35 26.89	+ 0.06	—20.26	—20.18	22 35 6.77	+ 0.14
	20	ι Cephei, (R.) .	E.	. .	. .	21.0	26.0	30.6	35.7	40.7	. .	. .	45 30.80	— 0.59	. .	—20.18	22 45 10.03	+ 0.62
	21	α Pegasi	E.	32.7	35.4	36.9	43.2	45.3	47.4	53.8	55.3	58.0	58 45.33	— 0.11	—20.17	—20.18	22 58 25.26	+ 0.02
	22	Anonymous . .	E.	. .	. .	57.0	59.0	1.2	3.4	5.5	. .	. .	12 1.22	— 0.21	. .	—20.18	23 11 40.83	— 2.34
	23	29 Piscium . . .	E.	. .	. .	34.5	36.6	38.6	40.8	42.8	. .	. .	55 38.66	— 0.11	. .	—20.18	23 55 18.37	— 2.47
	24	33 Piscium . . .	E.	57.5	0.1	1.7	7.8	9.8	11.9	17.9	19.7	22.3	59 9.86	— 0.14	. .	—20.18	23 58 49.54	— 2.50
	25	α Andromedæ . .	E.	54.9	57.7	59.5	6.6	8.9	11.2	18.0	19.9	22.8	2 8.83	+ 0.30	—20.18	—20.18	0 1 48.95	+ 0.02
	26	γ Pegasi	E.	48.7	51.4	52.9	59.3	1.4	3.5	9.7	11.4	14.0	7 1.37	+ 0.11	—20.23	—20.18	0 6 41.30	+ 0.05
	27	δ Piscium . . .	E.	13.0	15.6	17.2	23.3	25.4	27.5	33.6	35.3	37.7	42 25.40	+ 0.02	. .	—20.18	0 42 5.24	— 2.62
	28	ε Piscium . . .	E.	28.6	31.3	32.9	38.9	41.0	43.0	49.2	50.7	53.4	56 41.00	+ 0.02	—20.23	—20.18	0 56 20.84	+ 0.07
	29	e Piscium . . .	E.	57.3	59.9	1.4	7.6	9.6	11.7	17.8	19.3	21.8	2 9.60	0.00	. .	—20.18	1 1 49.42	— 2.70
	30	33 Ceti.	E.	9.1	11.7	13.2	19.4	21.4	23.4	29.5	31.0	33.6	4 21.37	— 0.04	. .	—20.18	1 4 1.15	— 2.70
	31	Polaris	E.	. .	. .	52.0	14.0	40.0	4.0	29.0	. .	. .	12 39.80	. .	. .	. .	. . . .	. .
	32	θ^1 Ceti. . . .	E.	48.2	50.9	52.5	58.6	0.7	2.8	9.0	10.5	13.0	18 0.69	— 0.17	—20.20	—20.17	1 17 40.35	+ 0.05
	33	η Piscium . . .	E.	48.5	51.0	52.7	59.0	1.1	3.2	9.5	11.0	13.8	25 1.09	+ 0.12	—20.21	—20.17	1 24 41.04	+ 0.11
	34	101 Piscium . . .	E.	6.2	8.8	10.5	16.8	18.8	20.9	27.2	28.8	31.6	29 18.84	+ 0.11	. .	—20.17	1 28 58.78	— 2.82
	35	Neptune I, C. . .	E.	52.2	54.9	56.3	. .	. .	. .	12.8	14.3	16.9	33 4.57	+ 0.03	. .	—20.17	1 32 44.43	. .
	36	Neptune II . .	E.	. .	. .	0.7	2.8	4.9	6.9	9.0	. .	. .	33 4.86	+ 0.03	. .	—20.17	1 32 44.72	. .
	37	o Piscium . . .	E.	48.8	51.3	52.9	59.0	1.0	3.0	9.3	10.9	13.5	39 1.08	+ 0.04	—20.10	—20.17	1 38 40.95	— 0.10
	38	Polaris, S. P. . .	F.	. .	. .	23.0	57.0	32.0	7.0	41.0	. .	. .	13 32.00	—26.30	. .	—20.02	1 12 45.68	+ 0.31
	39	α Virginis . . .	F.	35.2	37.9	39.4	45.8	47.8	49.9	56.0	57.6	0.1	18 47.74	— 0.24	—19.94	—20.02	13 18 27.48	— 0.10
8	40	Sun I, S. . . .	F.	38.9	41.4	43.0	49.4	51.6	53.8	0.2	2.0	4.6	55 51.66	— 0.33	. .	—20.01	14 55 31.32	. .
	41	Sun II, N. . . .	F.	54.9	57.2	58.8	5.2	7.4	9.4	15.8	17.5	20.3	58 7.37	— 0.33	. .	—20.01	14 57 47.03	. .
	42	Venus I, N. . .	F.	32.3	35.3	37.0	43.6	45.9	48.2	54.6	56.5	59.3	1 45.86	— 0.43	. .	—20.01	17 1 25.43	+ 0.44
	43	α^1 Herculis . . .	F.	56.1	58.8	0.4	6.7	8.8	10.9	17.2	18.8	21.5	9 8.80	+ 0.07	—19.92	—20.01	17 8 48.86	— 0.07
	44	ϕ Capricorni . . .	F.	29.6	32.2	34.0	40.5	42.8	44.9	51.6	53.1	55.8	8 42.72	— 0.31	. .	—20.00	21 8 22.41	— 1.81
	45	Anonymous . .	F.	11.2	14.5	16.4	24.4	27.0	29.5	37.3	39.4	42.4	16 26.90	+ 0.57	. .	—20.00	21 16 7.47	— 1.07
	46	Anonymous . .	F.	43.8	46.3	47.8	54.0	56.1	58.0	4.5	6.0	8.6	20 56.12	— 0.32	. .	—20.00	21 20 35.80	— 1.89
	47	ε Capricorni. . .	F.	3.8	6.6	8.0	14.7	16.9	19.0	25.6	27.2	29.9	30 16.86	— 0.29	. .	—20.00	21 29 56.57	— 1.92
	48	B. A. C. 7524 . .	F.	41.8	45.0	47.0	55.0	57.6	0.3	8.0	10.0	13.4	32 57.57	+ 0.58	. .	—20.00	21 32 38.15	— 1.21
	49	c^1 Capricorni. . .	F.	20.2	23.0	24.5	30.7	32.7	34.8	41.0	42.5	45.0	38 32.71	— 0.14	. .	—20.00	21 38 12.57	— 1.84
	50	μ' Capricorni. . .	F.	. .	. .	37.0	39.0	41.0	43.2	45.3	. .	. .	46 41.10	— 0.21	—19.98	—20.00	21 46 20.89	+ 0.01

3. Bisections at wires IV–VI.
4. Bisections at wires V and VI.
5. Bisections at wires IV and V.
11. Bisections at set C.
20. Bisections at wires C_1 and VI.
28. Telescope micrometer reading increased one revolution in reduction.
41. Telescope micrometer reading decreased one revolution in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	333 42	4.6	3.2	1.7	24.6	35	. .	590	. .	640	. .	56.6	26 13 52.1	750	+ 27.8	77 20 41.1	+ 2.7
2	350 44	9.2	7.4	6.0	26.0	31	. .	920	. .	940	. .	56.4	9 10 59.1	. .	+ 9.2	60 17 29.5	+ 0.2
3	298 22	8.5	6.0	5.5	29.8	36	. .	. .	560	480	400	56.4	61 34 10.9	. .	+ 1 44.5	112 42 16.6	
4	344 22	14.0	11.0	8.0	29.0	35	. .	. .	640	630	. .	56.4	15 33 59.2	. .	+ 15.8	66 40 36.2	+18.1
5	299 40	9 17.0	14.5	12.3	7.0	35	. .	. .	840	800	. .	56.4	60 15 36.7	. .	+ 1 39.1	111 23 37.0	+ 3.3
6	307 0	4.4	1.8	0.3	25.3	36	. .	310	. .	280	. .	56.4	52 56 1.6	. .	+ 1 15.1	104 3 37.9	+ 6.3
7	359 46	13.0	12.0	10.2	2.3	30	. .	700	. .	690	. .	56.4	0 8 45.0	780	+ 0.1	51 15 6.3	+22.5
8	301 38	14.0	10.0	8.7	3.4	39	. .	250	. .	270	. .	56.4	58 18 55.8	. .	+ 1 31.8	109 26 48.8	+ 4.8
9	309 6	18.3	16.0	14.8	8.2	33	. .	900	. .	940	. .	56.4	50 49 39.0	. .	+ 1 9.6	101 57 9.8	+ 7.7
10	306 54	6.8	3.8	1.8	25.0	34	. .	030	. .	060	. .	56.4	53 1 28.5	. .	+ 1 15.3	104 9 5.0	+ 2.8
11	145 44	15.7	3.3	2.8	27.0	35	970	. .	. .	. .	900	56.4	204 12 0.4	. .	+ 25.5	26 53 54.3	+ 9.3
12	320 6	17.5	15.0	13.5	7.1	31	. .	820	. .	800	. .	56.4	39 49 5.7	770	+ 47.4	90 56 14.3	+ 0.6
13	310 48	16.0	13.0	11.2	5.0	36	. .	480	. .	500	. .	56.4	49 8 15.5	. .	+ 1 5.6	100 15 42.3	+ 9.3
14	312 22	16.3	12.4	11.3	6.0	34	. .	150	. .	090	. .	56.4	47 33 39.3	. .	+ 1 2.1	98 41 2.6	+10.1
15	312 44	18.6	14.5	13.5	7.3	34	. .	600	. .	610	. .	56.4	47 11 48.7	. .	+ 1 1.3	98 19 11.2	+10.4
16	315 34	15.7	12.0	10.8	4.0	33	. .	880	. .	840	. .	56.4	44 21 34.5	. .	+ 55.5	95 28 51.2	+11.5
17	307 30	4.5	2.0	1.5	24.0	37	. .	990	. .	000	. .	56.4	52 26 27.8	. .	+ 1 13.8	103 34 2.8	+ 9.0
18	320 16	16.0	12.4	11.2	4.0	32	. .	520	. .	490	. .	56.4	39 39 14.0	. .	+ 47.1	90 46 22.3	+ 1.0
19	331 12	16.7	13.5	11.7	4.0	31	. .	600	. .	630	. .	56.4	28 43 1.0	785	+ 31.1	79 49 53.3	+ 1.3
20	153 18	18.5	13.8	13.7	7.5	35	. .	380	. .	410	. .	56.4	206 38 0.5	. .	+ 28.5	24 27 52.2	− 1.7
21	335 34	12.4	10.7	10.3	1.1	35	. .	210	. .	240	. .	56.4	24 21 53.5	. .	+ 25.8	75 28 40.5	+ 1.7
22	309 10	8.0	4.5	4.0	27.8	38	. .	300	. .	310	. .	56.4	50 46 35.7	. .	+ 1 9.6	101 54 6.5	+11.4
23	317 18	22.0	19.5	16.8	10.4	30	. .	855	. .	835	. .	56.4	42 36 54.8	. .	+ 52.4	93 44 8.4	+15.0
24	314 36	22.0	20.0	18.0	11.6	26	. .	620	. .	610	. .	56.4	45 17 50.9	. .	+ 57.5	96 25 9.6	+14.4
25	349 26	21.0	18.5	16.3	8.0	35	. .	420	. .	410	. .	56.4	10 30 3.9	. .	+ 10.6	61 36 35.7	0.0
26	335 30	3.7	1.8	29.5	21.7	30	. .	680	. .	650	. .	56.4	24 24 34.1	792	+ 25.8	75 31 20.1	+ 0.2
27	327 56	10 24.5	21.4	19.0	11.5	32	. .	835	. .	805	. .	56.4	31 59 27.0	. .	+ 35.6	83 6 23.8	+18.1
28	328 14	7.8	6.5	4.3	27.0	30	. .	020	. .	010	. .	56.4	31 40 44.2	. .	+ 35.2	82 47 40.6	+ 0.8
29	326 2	11.5	8.6	5.7	0.7	37	. .	520	. .	510	. .	56.4	33 54 26.7	. .	+ 38.3	85 1 26.2	+17.7
30	322 50	11.5	8.3	5.5	29.5	38	. .	985	. .	975	. .	56.4	37 6 48.8	. .	+ 43.1	88 13 53.1	+17.2
31	49 38	14.5	12.6	11.3	4.5	30	645	. .	650	. .	. .	56.4	310 16 45.5	. .	− 1 7.3	1 21 59.4	− 2.6
32	312 12	24.5	22.7	18.3	12.3	31	. .	190	. .	180	. .	56.4	47 43 2.3	. .	+ 1 2.7	98 50 26.2	+ 2.2
33	335 44	10.0	8.0	5.5	27.7	35	. .	040	. .	030	. .	56.4	24 11 47.3	. .	+ 25.6	75 18 34.1	+ 0.8
34	335 4	14.8	12.5	9.5	2.7	37	. .	570	. .	570	. .	56.5	24 52 30.8	. .	+ 26.5	75 59 18.5	+18.8
35	328 50	14.5	11.1	9.5	2.5	34	. .	388	. .	382	. .	56.4	31 5 41.4	. .	+ 34.4	82 12 37.0	− 0.2
36																	
37	329 34	19.1	16.5	14.0	7.7	35	. .	420	. .	390	. .	56.4	30 22 2.0	. .	+ 33.4	81 28 56.6	+ 0.2
38	52 24	15.0	13.8	11.4	7.4	38	760	750	826	826	828	57.4	307 32 52.5	840	− 1 15.1	358 37 58.6	+ 0.4
39	310 34	10.4	6.7	3.3	29.6	36	. .	370	. .	360	. .	57.4	49 22 8.3	. .	+ 1 7.3	100 29 36.8	+ 0.9
40	303 58	29.2	26.0	22.5	17.0	35	810	760	. .	. .	. .	57.4	55 57 48.4	815	+ 1 24.9	107 5 34.5	
41	304 30	22.3	18.3	16.8	13.7	35	. .	. .	. .	042	036	57.4	55 25 30.1	. .	+ 1 23.3	106 33 14.6	
42	297 4	9.3	6.4	3.3	1.5	37	. .	432	. .	480	. .	57.4	62 52 25.1	. .	+ 1 51.8	114 0 38.1	
43	335 36	4.3	3.8	2.0	26.0	31	. .	. .	. .	824	806	57.4	24 20 55.1	. .	+ 26.0	75 27 42.3	+ 1.8
44	299 52	2.4	29.3	27.1	21.4	31	. .	. .	. .	540	540	58.5	60 2 47.6	. .	+ 1 41.6	111 10 50.4	+ 2.0
45	359 26	9.9	8.3	6.3	29.5	36	. .	. .	. .	250	236	58.5	0 30 8.9	. .	+ 0.5	51 36 30.6	+21.9
46	299 20	9 27.6	22.7	21.7	17.4	34	280	266	. .	. .	. .	58.5	60 35 25.5	886	+ 1 43.9	111 43 29.6	+ 3.4
47	301 2	11.5	7.3	5.6	0.3	36	748	752	. .	. .	. .	58.5	58 54 16.4	. .	+ 1 37.2	110 2 14.8	+ 5.8
48	359 46	6.6	4.6	2.2	25.3	31	. .	130	. .	120	. .	58.5	0 8 46.4	. .	+ 0.2	51 15 7.8	+23.7
49	311 24	11.2	6.7	4.1	1.2	37	. .	946	. .	942	. .	58.5	48 32 34.4	. .	+ 1 6.5	99 40 2.1	+ 8.4
50	306 54	10.2	5.9	3.5	28.9	33	. .	. .	. .	546	558	58.5	53 1 25.6	. .	+ 1 18.0	104 9 4.8	+ 2.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	29.639	60.0	60.0
7	29.635	57.0	56.5
12	. .	. .	56.5
19	29.620	56.0	56.0
26	29.620	55.0	55.0
38	29.815	51.5	51.0
40	29.80	52.5	53.0
46	29.890	50.0	43.8

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	″	° ′ ″
3	−51 57.1	− 16 8.2	. .	−1 8 5.3
35	− 0.2	. .	. .	− 0.2
40	− 7.4	− 16 9.9	. .	− 16 17.3
41	− 7.3	+ 16 9.9	. .	+ 16 2.6
42	− 5.6	+ 6.1	. .	+ 0.5

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Nov. 8	1	Schjellerup 9030 .	F.	0.9	3.7	5.3	11.5	13.6	15.8	21.8	23.5	26.0	2 13.57	− 0.15	. .	−20.00	22 1 53.42	− 1.97
	2	Moon I, S. . . .	F.	14.8	17.6	19.3	25.7	27.9	30.3	37.0	38.6	41.3	7 28.06	− 0.26	. .	−20.00	22 7 7.80	+70.21
	3	51 Aquarii. . . .	F.	36.6	39.2	40.7	47.0	49.0	51.0	57.0	58.6	1.2	17 48.92	− 0.09	. .	−20.00	22 17 28.83	− 2.00
	4	B. A. C. 7835 . .	F.	20.5	23.0	24.7	30.9	33.0	35.1	41.5	43.0	45.6	23 33.03	− 0.20	. .	−20.00	22 23 12.83	− 2.12
	5	ψ^1 Aquarii. . . .	F.	. .	. .	29.3	31.5	33.5	35.6	37.6	. .	. .	9 33.50	− 0.15	. .	−20.00	23 9 13.50	− 2.30
	6	θ Piscium . . .	F.	38.5	41.0	42.5	48.7	50.8	52.8	59.0	0.5	3.0	21 50.76	+ 0.06	−20.02	−20.00	23 21 30.82	+ 0.08
	7	16 Piscium . . .	F.	1.5	4.0	5.6	11.6	13.7	15.7	22.0	23.5	26.0	30 13.73	0.00	. .	−20.00	23 29 53.73	− 2.32
	8	20 Piscium . . .	F.	32.0	34.6	36.0	42.1	44.1	46.3	52.3	53.9	56.4	41 44.19	− 0.06	. .	−20.00	23 41 24.13	− 2.40
	9	21 Piscium . . .	F.	4.2	6.8	8.4	14.5	16.6	18.7	24.7	26.3	28.8	43 16.56	− 0.01	. .	−20.00	23 42 56.55	− 2.38
	10	Groombridge 4163	F.	15.0	24.0	29.0	51.1	58.4	5.9	28.2	33.5	42.3	49 58.60	+ 2.45	. .	−20.00	23 49 41.05	− 0.15
	11	ω Piscium . . .	F.	54.4	57.0	58.5	4.6	6.6	8.6	15.0	16.5	19.0	53 6.69	+ 0.06	−19.96	−20.00	23 52 46.75	− 0.03
	12	γ Pegasi . . .	F.	48.4	51.0	52.7	59.0	1.0	3.0	9.5	11.0	13.7	7 1.03	+ 0.18	−19.97	−20.00	0 6 41.21	− 0.03
	13	51 Piscium . . .	F.	57.8	0.4	1.9	8.0	10.1	12.0	18.3	19.8	22.5	26 10.09	+ 0.07	. .	−20.00	0 25 50.16	− 2.55
	14	κ Draconis, S. P. .	F.	58.1	50.3	46.0	. .	. .	. .	. .	. .	. .	28 21.36	− 1.97	. .	−20.00	12 27 59.39	− 0.31
	15	β Ceti.	F.	19.8	22.6	24.1	30.6	32.8	35.0	41.4	43.4	45.7	37 32.82	− 0.27	−20.00	−20.00	0 37 12.55	+ 0.05
	16	62 Piscium . . .	F.	49.4	51.8	53.4	59.5	1.6	3.7	9.8	11.3	13.9	42 1.60	+ 0.07	. .	−20.00	0 41 41.67	− 2.62
	17	ε Piscium . . .	F.	30.9	32.4	36.4	38.5	40.5	42.6	44.8	49.0	50.4	56 40.61	+ 0.08	−19.91	−20.00	0 56 20.69	− 0.07
	18	e Piscium . . .	F.	57.0	59.5	1.0	7.3	9.3	11.3	17.5	19.2	21.6	2 9.30	+ 0.05	. .	−20.00	1 1 49.35	− 2.70
	19	33 Ceti.	F.	8.8	11.5	13.0	19.0	21.0	23.1	29.4	30.8	33.4	4 21.11	+ 0.01	. .	−20.00	1 4 1.12	− 2.70
	20	Polaris	F.	. .	. .	44.0	10.0	36.0	2.0	27.0	. .	. .	12 35.80	+29.87	. .	−20.00	1 11 45.67	+ 0.52
	21	θ^1 Ceti.	F.	48.0	50.6	52.2	58.4	0.5	2.5	8.8	10.2	12.8	18 0.44	− 0.13	−19.99	−20.00	1 17 40.31	+ 0.01
	22	η Piscium . . .	F.	48.1	51.0	52.5	58.8	0.9	3.0	9.3	10.9	13.5	25 0.89	+ 0.18	−20.07	−20.00	1 24 40.93	+ 0.14
	23	Neptune . . .	F.	46.4	49.0	50.6	56.7	58.7	0.8	7.0	8.5	11.2	32 58.77	+ 0.09	. .	−20.00	1 32 38.86	. .
	24	o Piscium . . .	F.	48.6	51.0	52.7	. .	. .	. .	. .	. .	. .	39 1.14	+ 0.09	−20.20	−20.00	1 38 41.22	+ 0.16
12	25	42 Aquarii. . . .	F.	6.0	8.7	10.3	16.6	18.7	20.8	27.0	28.6	31.3	10 18.67	− 0.19	. .	−19.77	22 9 58.71	− 2.00
	26	ρ Aquarii. . . .	F.	. .	. .	. .	. .	. .	. .	. .	59.5	2.0	13 49.65	− 0.12	. .	−19.77	22 13 29.76	− 1.96
	27	51 Aquarii. . . .	F.	36.3	38.9	40.4	46.6	48.6	50.7	56.8	58.3	0.9	17 48.61	− 0.09	. .	−19.77	22 17 28.75	− 1.95
	28	η Aquarii. . . .	F.	56.4	58.8	0.3	6.4	8.5	10.6	16.7	18.3	20.8	29 8.53	− 0.03	−19.81	−19.77	22 28 48.73	+ 0.07
	29	ζ Pegasi . . .	F.	14.0	16.5	18.0	24.3	26.4	28.5	34.7	36.1	38.8	35 26.37	+ 0.10	−19.85	−19.77	22 35 6.70	+ 0.14
	30	B. A. C. 7937 . .	F.	23.0	25.9	27.5	33.9	36.0	38.1	44.8	46.3	49.0	39 36.06	+ 0.20	. .	−19.77	22 39 16.49	− 1.87
	31	70 Aquarii. . . .	F.	55.6	58.0	59.7	5.9	8.0	10.0	16.5	18.0	20.5	42 8.02	− 0.16	. .	−19.77	22 41 48.09	− 2.14
	32	τ^2 Aquarii. . . .	F.	1.0	2.6	6.7	9.0	11.0	13.0	15.1	19.4	21.0	43 10.98	− 0.20	. .	−19.77	22 42 51.01	− 2.18
	33	α Piscis Australis .	F.	42.9	45.8	47.6	54.6	57.0	59.2	6.5	8.3	11.3	50 57.02	− 0.42	−19.72	−19.77	22 50 36.83	− 0.01
	34	α Pegasi . . .	F.	32.2	34.9	36.5	42.9	44.9	47.0	53.4	54.9	57.5	58 44.91	+ 0.15	−19.85	−19.77	22 58 25.29	+ 0.11
	35	ψ^1 Aquarii. . . .	F.	20.9	23.4	24.9	31.3	33.2	35.2	41.5	43.0	45.7	9 33.23	− 0.14	. .	−19.77	23 9 13.32	− 2.26
	36	χ Aquarii. . . .	F.	22.6	25.0	26.8	32.8	34.9	37.0	43.2	44.7	47.4	10 34.93	− 0.13	. .	−19.77	23 10 15.03	− 2.25
	37	ψ^2 Aquarii. . . .	F.	. .	. .	. .	. .	. .	. .	45.4	47.0	49.7	11 37.17	− 0.14	. .	−19.77	23 11 17.26	− 2.27
	38	κ Piscium . . .	F.	. .	. .	40.2	42.3	44.3	46.3	48.4	. .	. .	20 44.30	− 0.02	. .	−19.77	23 20 24.51	− 2.24
	39	9 Piscium . . .	F.	. .	. .	. .	. .	5.5	7.6	11.5	13.0	15.6	21 3.27	+ 0.10	. .	−19.77	23 20 43.60	− 2.18
	40	16 Piscium . . .	F.	1.2	3.9	5.3	11.5	13.5	15.5	21.7	23.2	25.7	30 13.50	− 0.01	. .	−19.77	23 29 53.72	− 2.28
	41	ι Piscium . . .	F.	31.7	34.3	36.0	42.0	44.0	46.1	52.2	53.8	56.3	33 44.04	+ 0.03	−19.69	−19.77	23 33 24.30	− 0.08
	42	λ Piscium . . .	F.	40.7	43.3	44.9	51.0	53.0	55.0	1.0	2.6	5.2	35 52.97	− 0.01	. .	−19.77	23 35 33.19	− 2.31
	43	20 Piscium . . .	F.	31.7	34.3	35.8	42.0	44.0	46.0	52.0	53.6	56.2	41 43.96	− 0.06	. .	−19.77	23 41 24.13	− 2.37
	44	Groombridge 4163	F.	14.8	24.0	29.3	51.2	58.5	5.7	27.7	33.0	42.3	48 58.50	+ 2.22	. .	−19.77	23 48 40.92	− 0.08
	45	27 Piscium . . .	F.	. .	. .	. .	. .	. .	. .	. .	39.2	41.7	52 29.42	− 0.07	. .	−19.77	23 52 9.58	− 2.39
	46	30 Piscium . . .	F.	36.3	37.8	41.9	43.9	46.0	48.0	50.0	54.3	55.7	55 45.99	− 0.09	. .	−19.77	23 55 26.13	− 2.44
	47	33 Piscium . . .	F.	57.0	59.5	1.3	7.2	9.4	11.5	17.5	19.0	21.7	59 9.34	− 0.10	. .	−19.77	23 58 49.47	− 2.46
	48	γ Pegasi . . .	F.	. .	. .	. .	0.8	3.0	5.0	9.2	11.0	13.5	7 0.84	+ 0.15	−19.78	−19.77	0 6 41.22	+ 0.01
	49	44 Piscium . . .	F.	0.6	3.0	4.6	10.7	12.8	14.7	21.0	22.4	25.0	19 12.76	− 0.01	. .	−19.77	0 18 52.98	− 2.51
	50	51 Piscium . . .	F.	57.5	0.1	1.6	7.8	9.9	12.0	18.0	19.6	22.0	26 9.83	+ 0.05	. .	−19.77	0 25 50.11	− 2.53

10. Bisections at set C.
14, 44. Bisections at sets B and D.
39. Telescope micrometer reading increased one revolution in reduction.
47. Telescope micrometer reading decreased five revolutions in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	310 48	13.2	8.6	6.8	2.5	36	. .	. .	. .	486	480	58.5	49 8 13.8	900	+ 1 8.0	100 15 43.0	+ 9.2
2	302 54	4.8	0.9	28.1	24.4	38	916	766	644	426	280	58.5	57 2 38.3	. .	+ 1 30.6	108 10 30.1	
3	315 34	8.2	4.6	1.9	27.5	34	. .	136	. .	140	. .	58.5	44 21 33.2	. .	+ 57.6	95 28 52.0	+11.5
4	307 30	7.5	4.2	1.5	28.3	37	. .	440	. .	440	. .	58.5	52 26 23.7	908	+ 1 16.5	103 34 1.4	+ 8.9
5	311 16	12.1	9.6	7.3	0.7	33	. .	. .	. .	650	650	58.5	48 39 30.0	. .	+ 1 7.1	99 46 58.3	+11.9
6	326 44	8.4	4.4	1.3	27.2	36	. .	536	. .	528	. .	58.5	33 12 9.8	. .	+ 38.7	84 19 9.7	+ 2.0
7	322 26	8.5	4.8	2.7	28.3	32	. .	330	. .	340	. .	58.5	37 29 6.1	918	+ 45.3	88 36 12.6	+15.9
8	317 34	8.7	4.5	2.3	28.1	31	566	560	. .	. .	. .	58.5	42 20 54.1	. .	+ 53.9	93 28 9.2	+14.6
9	321 24	7.5	3.5	1.1	26.6	30	. .	748	. .	742	. .	58.5	38 30 40.3	. .	+ 47.1	89 37 48.6	+15.7
10	34 44	10.0	8.4	6.7	1.2	35	650	. .	650	. .	660	58.5	325 12 0.1	. .	− 41.1	16 17 40.2	− 0.8
11	327 12	7.0	2.8	28.8	25.2	33	. .	850	. .	830	. .	58.5	32 43 26.6	. .	+ 38.0	83 50 25.8	+ 0.8
12	335 30	3.8	1.5	29.7	22.2	30	. .	470	. .	476	. .	58.5	24 24 33.4	. .	+ 26.9	75 31 21.5	+ 0.6
13	327 18	13.3	9.7	7.0	2.2	34	. .	870	. .	880	. .	58.5	32 37 49.6	. .	+ 38.0	83 44 48.8	+17.9
14	70 30	9 26.8	25.4	22.4	18.2	35	370	360	. .	. .	. .	58.5	289 25 42.1	. .	− 2 46.9	340 29 16.4	+ 0.8
15	302 22	11.0	5.7	3.4	29.4	32	. .	952	. .	966	. .	58.5	57 33 16.8	930	+ 1 33.1	108 41 11.1	+ 1.3
16	327 40	13.0	9.8	6.5	2.3	38	. .	190	. .	200	. .	58.5	32 16 40.5	. .	+ 37.5	83 23 39.2	+18.0
17	328 14	9.8	7.2	4.4	27.6	30	. .	. .	. .	750	750	58.5	31 40 43.0	. .	+ 36.6	82 47 40.8	+ 1.0
18	326 2	10.8	8.0	3.7	29.8	37	122	128	. .	. .	. .	58.5	33 54 21.8	. .	+ 39.9	85 1 22.9	+17.7
19	322 50	17.5	14.3	11.6	6.6	38	. .	332	. .	344	. .	58.5	37 6 47.2	. .	+ 44.9	88 13 53.3	+17.1
20	49 38	16.1	14.4	12.8	6.7	30	634	630	. .	710	700	58.5	310 16 49.7	. .	− 1 10.0	1 22 0.9	− 0.7
21	312 12	12.8	9.2	6.5	2.3	31	. .	686	. .	670	. .	58.5	47 43 0.1	. .	+ 1 5.3	98 50 26.6	+ 2.5
22	335 44	12.8	9.2	7.1	29.4	34	829	795	. .	792	800	58.5	24 11 47.7	. .	+ 26.7	78 18 35.6	+ 2.3
23	328 50	12.0	6.8	4.3	28.7	36	. .	540	. .	550	. .	58.5	31 6 12.7	. .	+ 35.9	82 13 9.8	
24	329 34	12.1	8.2	6.3	0.7	35	. .	760	. .	. .	. .	58.5	30 22 2.0	922	+ 34.9	81 28 58.1	+ 1.7
25	307 36	1.5	27.1	24.3	20.2	37	. .	864	. .	842	. .	58.3	52 20 22.8	. .	+ 1 16.3	103 28 0.3	+ 8.2
26	312 36	10.0	6.4	5.5	28.8	36	. .	608	. .	610	. .	58.3	47 20 13.1	. .	+ 1 3.9	98 27 38.2	+10.0
27	315 34	5.8	2.4	0.9	25.2	34	. .	250	. .	230	. .	58.3	44 21 32.7	900	+ 57.6	95 28 51.5	+11.2
28	320 16	10.4	7.1	5.8	0.5	32	. .	626	. .	640	. .	58.3	39 39 12.9	. .	+ 48.9	90 46 23.0	+ 1.4
29	331 12	7.0	4.0	2.0	25.5	32	064	074	. .	. .	. .	58.3	28 43 0.6	. .	+ 32.3	79 49 54.1	+ 1.9
30	339 44	0.0	26.5	23.5	17.7	34	. .	210	. .	202	. .	58.3	20 11 25.6	. .	+ 21.7	71 18 8.5	+19.7
31	309 50	1.5	27.4	26.0	1.4	36	. .	900	. .	910	. .	58.3	50 6 11.6	. .	+ 1 10.5	101 13 43.3	+10.2
32	306 48	1.2	26.8	24.3	21.3	37	. .	. .	. .	396	392	58.3	53 8 15.8	. .	+ 1 18.6	104 15 55.6	+ 9.1
33	290 46	10.2	6.7	2.4	0.3	31	. .	. .	. .	940	950	58.3	69 9 0.9	. .	+ 2 33.9	120 17 55.0	− 0.2
34	335 34	7.5	3.5	2.0	24.8	35	. .	568	. .	576	. .	58.3	24 21 54.1	910	+ 26.8	75 28 42.1	+ 3.2
35	311 16	10.7	6.5	4.0	0.2	33	542	538	. .	. .	. .	58.3	48 39 26.2	. .	+ 1 7.1	99 46 54.5	+11.6
36	312 38	9.3	4.8	3.2	28.2	35	. .	256	. .	234	. .	58.3	47 17 50.9	. .	+ 1 4.0	98 25 16.1	+12.1
37	311 10	4.3	29.2	26.5	22.1	33	. .	128	. .	122	. .	58.3	48 45 12.5	. .	+ 1 7.3	99 52 41.0	+11.7
38	321 36	8.5	3.9	1.8	27.5	33	190	196	. .	. .	. .	58.3	38 19 18.5	. .	+ 46.5	89 26 26.2	+15.2
39	331 28	5.1	0.9	27.8	23.2	33	. .	. .	. .	954	950	58.3	28 27 41.7	. .	+ 32.0	79 34 34.9	+18.2
40	322 26	8.7	5.9	2.4	27.1	32	. .	380	. .	390	. .	58.3	37 29 6.7	. .	+ 45.4	88 36 13.3	+15.7
41	325 58	4.5	0.5	27.3	3.0	31	210	236	. .	. .	. .	58.3	33 56 46.8	. .	+ 39.8	85 3 47.8	+ 2.7
42	322 8	11.8	7.7	5.2	0.5	36	086	096	. .	. .	. .	58.3	37 48 6.4	. .	+ 45.9	88 55 13.5	+15.7
43	317 34	6.8	3.1	29.2	26.3	31	. .	640	. .	648	. .	58.3	42 20 53.1	922	+ 53.9	93 28 8.2	+14.5
44	34 44	5.8	3.4	29.9	26.1	36	016	. .	. .	. .	002	58.3	325 12 0.4	924	− 41.1	16 17 40.5	+ 0.6
45	316 46	11.0	6.7	4.0	28.8	29	. .	. .	. .	788	. .	58.3	43 8 28.4	. .	+ 55.6	94 15 45.2	+14.5
46	314 20	13.1	9.0	6.7	1.7	35	. .	. .	. .	458	450	58.3	44 35 57.5	. .	+ 58.5	95 43 17.2	+14.2
47	314 36	9.4	5.3	3.4	28.5	32	. .	. .	. .	300	308	58.3	45 17 49.5	. .	+ 59.9	96 25 10.6	+14.1
48	335 30	9.0	5.4	4.3	26.5	30	. .	. .	. .	220	210	58.3	24 24 33.8	. .	+ 26.9	75 31 21.9	+ 1.1
49	322 18	15.0	11.3	7.9	3.4	38	418	428	. .	. .	. .	58.3	37 38 45.4	. .	+ 45.8	88 45 52.4	+16.5
50	327 18	8.3	4.4	0.6	27.0	35	. .	196	. .	196	. .	58.3	32 37 48.9	926	+ 38.0	83 44 48.1	+17.8

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
24	29.954	44.0	38.8
27	29.98	49.0	43.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
2	−49 23.1	+ 16 7.0	. .	−1 5 30.1
23	− 0.1	. .	. .	− 0.1

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Nov. 12	1	B. A. C. 221	F.	50.4	52.9	54.4	0.6	2.7	4.7	10.8	12.4	14.9	42 2.64	+ 0.03	. .	−19.77	0 41 42.90	− 2.60
	2	ε Piscium	F.	. .	. .	. .	. .	. .	. .	48.6	50.3	52.8	56 40.45	+ 0.06	−19.73	−19.77	0 56 20.74	− 0.02
	3	e Piscium	F.	56.8	59.3	0.8	7.0	9.0	11.0	17.3	18.7	21.3	2 9.02	+ 0.04	. .	−19.77	1 1 49.29	− 2.69
	4	33 Ceti	F.	8.5	11.2	12.8	18.8	20.9	23.0	29.0	30.6	33.0	4 20.87	0.00	. .	−19.77	1 4 1.10	− 2.69
	5	ξ Piscium	F.	12.8	15.2	16.8	23.0	25.0	27.2	33.4	34.9	37.5	7 25.09	+ 0.06	. .	−19.77	1 7 5.38	− 2.71
	6	Polaris	F.	. .	. .	45.5	11.0	36.0	1.0	27.0	. .	. .	12 36.10	+27.55	. .	−19.77	1 12 43.88	− 0.02
	7	η Piscium	F.	47.9	50.6	52.2	58.5	0.6	2.7	9.0	10.6	13.0	25 0.57	+ 0.15	−19.73	−19.77	1 24 40.95	+ 0.03
	8	Neptune	F.	24.0	26.5	28.0	34.2	36.0	38.3	44.5	46.0	48.6	32 36.23	+ 0.07	. .	−19.77	1 32 16.53	. .
	9	ν Piscium	F.	56.7	59.2	0.7	6.9	9.0	11.0	17.0	18.5	21.2	35 8.91	+ 0.03	. .	−19.77	1 34 49.17	− 2.84
	10	Moon I, S.	F.	26.7	29.3	31.0	37.2	39.3	41.4	47.7	49.3	51.8	38 39.30	+ 0.05	. .	−19.77	1 38 19.58	+65.85
	11	β Arietis	F.	43.8	46.7	48.0	54.7	56.9	59.0	5.5	7.2	9.9	47 56.86	+ 0.22	−19.78	−19.77	1 47 37.31	+ 0.03
14	12	α Bootis	E.	56.6	59.3	1.0	7.4	9.5	11.8	18.3	19.9	22.7	10 9.61	+ 0.28	−20.23	−20.19	14 9 49.70	+ 0.04
	13	ε Bootis	E.	29.8	32.9	34.4	41.3	43.7	46.0	52.9	54.6	57.5	39 43.68	+ 0.39	−20.15	−20.19	14 39 23.88	− 0.06
15	14	Sun I, S.	E.	9.7	12.4	14.0	20.4	22.6	24.9	31.4	32.9	35.6	24 22.66	− 0.18	. .	−20.20	15 24 2.28	. .
	15	Sun II, N.	E.	27.0	29.6	31.4	37.8	39.9	42.0	48.7	50.4	53.0	26 39.98	− 0.18	. .	−20.20	15 26 19.60	. .
	16	Mercury I, C.	E.	10.5	13.3	14.8	21.6	23.7	25.9	33.0	34.6	37.4	41 23.87	− 0.26	. .	−20.22	16 41 3.39	+ 0.20
	17	a^1 Herculis	E.	56.2	58.9	0.4	6.9	8.9	11.0	17.3	18.9	21.6	9 8.90	+ 0.22	−20.19	−20.23	17 8 48.89	− 0.02
	18	Venus I, N.	E.	13.7	16.5	18.0	25.0	27.3	29.6	36.4	38.0	40.9	39 27.27	− 0.26	. .	−20.23	17 39 6.78	+ 0.46
	19	Venus S.	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. . .	. . . .	. .
	20	μ Herculis	E.	. .	. .	42.0	44.3	46.6	49.0	51.3	. .	. .	41 46.64	+ 0.39	−20.08	−20.23	17 41 26.80	− 0.15
	21	δ Ursæ Minoris	E.	33.0	0.0	8.5	41.5	16.5	52.0	27.0	32.5	0.0	13 16.81	+11.00	. .	−20.24	18 13 7.57	− 1.37
	22	ζ Cygni	E.	36.0	39.0	40.9	47.9	50.3	52.6	59.6	1.5	4.5	7 50.26	+ 0.45	−20.34	−20.28	21 7 30.43	+ 0.07
	23	B. A. C. 7430	E.	. .	. .	27.3	31.4	35.4	40.0	44.5	. .	. .	17 35.80	+ 1.24	. .	−20.28	21 17 16.76	− 0.17
	24	35 Capricorni	E.	. .	. .	. .	. .	. .	. .	30.3	32.0	34.6	20 21.49	− 0.20	. .	−20.28	21 20 1.01	− 1.79
	25	β Aquarii	E.	58.7	1.3	2.9	9.0	11.0	13.1	19.3	20.9	23.4	25 11.07	0.00	−20.25	−20.28	21 24 50.79	0.00
	26	B. A. C. 7528	E.	11.6	14.3	15.9	22.4	24.5	26.7	33.2	34.8	37.6	33 24.56	+ 0.31	. .	−20.28	21 33 4.59	− 1.37
	27	c^1 Capricorni	E.	20.2	22.8	24.4	30.7	32.8	35.0	41.4	43.0	45.3	38 32.84	− 0.05	. .	−20.28	21 38 12.51	− 1.74
	28	δ Capricorni	E.	. .	. .	. .	. .	. .	. .	29.4	30.8	33.6	40 20.78	− 0.14	. .	−20.28	21 40 0.36	− 1.83
	29	μ Capricorni	E.	28.5	31.2	32.8	39.0	41.0	43.2	49.6	51.2	53.8	46 41.14	− 0.10	−20.22	−20.28	21 46 20.76	− 0.03
	30	α Aquarii	E.	. .	. .	30.4	32.4	34.5	36.6	38.6	. .	. .	59 34.50	+ 0.05	. .	−20.29	21 59 14.26	− 0.03
	31	Alceste	E.	47.6	50.3	51.7	57.9	0.1	2.2	8.4	9.9	12.3	11 0.04	− 0.06	. .	−20.29	22 10 39.69	. .
	32	ρ Aquarii	E.	37.4	40.0	41.7	47.8	49.9	52.0	58.3	59.8	2.5	13 49.93	− 0.03	. .	−20.29	22 13 29.61	− 1.92
	33	50 Aquarii	E.	45.4	48.4	49.6	55.9	58.0	0.0	6.4	57.9	10.7	17 58.03	− 0.10	. .	−20.29	22 17 37.64	− 2.01
	34	η Aquarii	E.	56.7	59.2	0.8	6.9	8.9	11.0	17.0	18.7	21.1	29 8.92	+ 0.06	−20.33	−20.29	22 28 48.69	+ 0.07
	35	ζ Pegasi	E.	14.3	17.0	18.5	24.6	26.7	28.8	35.0	36.6	39.3	35 26.76	+ 0.18	−20.36	−20.30	22 35 6.64	+ 0.12
	36	τ^2 Aquarii	E.	58.7	1.4	3.3	9.3	11.4	13.5	19.8	21.4	24.3	43 11.46	− 0.10	. .	−20.30	22 42 51.06	− 2.14
	37	λ Aquarii	E.	6.2	8.8	10.4	16.6	18.7	20.8	27.0	28.6	31.0	46 18.68	− 0.03	−20.40	−20.30	22 45 58.35	+ 0.18
	38	α Pegasi	E.	32.6	35.2	36.9	43.0	45.3	47.4	53.7	55.3	58.0	58 45.27	+ 0.24	−20.34	−20.30	22 58 25.21	+ 0.07
	39	ψ^1 Aquarii	E.	. .	. .	29.5	31.7	33.7	35.8	37.9	. .	. .	9 33.72	− 0.05	. .	−20.30	23 9 13.37	− 2.23
	40	χ Aquarii	E.	. .	. .	. .	35.6	37.4	39.4	43.7	45.0	47.7	10 35.36	− 0.03	. .	−20.30	23 10 15.03	− 2.22
	41	96 Aquarii	E.	55.9	58.4	59.9	6.0	8.2	10.3	16.4	18.0	20.8	13 8.21	0.00	. .	−20.30	23 12 47.91	− 2.21
	42	κ Piscium	E.	32.6	35.1	36.6	42.7	44.8	46.8	53.0	54.5	57.0	20 44.79	+ 0.07	. .	−20.30	23 20 24.56	− 2.21
	43	21 Piscium	E.	4.5	7.0	8.8	14.9	16.9	19.0	24.9	26.5	29.0	43 16.83	+ 0.07	. .	−20.31	23 42 56.59	− 2.32
	44	27 Piscium	E.	17.7	20.2	21.7	27.9	29.9	31.9	38.1	39.6	42.3	52 29.92	+ 0.02	. .	−20.31	23 52 9.63	− 2.40
	45	29 Piscium	E.	26.2	28.8	30.4	36.6	38.6	40.7	46.7	48.3	50.8	55 38.57	+ 0.02	. .	−20.31	23 55 18.28	− 2.41
	46	α Andromedæ, (R.)	E.	56.0	59.0	0.8	7.5	10.0	12.4	19.5	21.0	23.9	2 10.01	− 0.62	. .	−20.31	0 1 49.08	+ 0.22
	47	γ Pegasi, (R.)	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	48	β Ceti	E.	20.2	23.0	24.6	30.9	33.0	35.2	41.7	43.4	46.0	37 33.11	− 0.16	−20.44	−20.32	0 37 12.63	+ 0.17
	49	62 Piscium	E.	49.6	52.0	53.7	59.8	1.9	4.0	10.1	11.7	14.3	42 1.90	+ 0.14	. .	−20.32	0 41 41.72	− 2.59
	50	Polaris	E.	. .	. .	48.5	9.0	38.0	8.0	29.0	. .	. .	12 38.50	+28.79	. .	−20.33	1 12 46.96	+ 4.41

10. Bisections at wires III–V.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1																	
2	328 14	9.7	5.7	3.8	27.9	30	. .	888	. .	892	. .	58.3	31 40 44.6	. .	+ 36.7	82 47 42.5	+ 2.7
3	326 2	11.9	8.4	4.7	0.6	37	. .	. .	. .	278	272	58.3	33 54 24.6	. .	+ 40.0	85 1 25.8	+17.6
4	322 50	8.0	4.1	1.0	27.2	39	. .	046	. .	040	. .	58.3	37 6 48.2	. .	+ 45.0	88 13 54.4	+16.9
5	327 58	11.5	6.5	3.9	29.4	39	. .	080	. .	090	. .	58.3	31 58 51.5	. .	+ 37.2	83 5 49.9	+18.0
6	49 38	9 28.9	26.6	23.9	18.0	31	795	796	790	794	796	58.3	310 16 48.6	. .	− 1 10.2	1 21 59.6	− 0.7
7	335 44	3.2	29.7	27.0	20.3	35	. .	434	. .	404	. .	58.3	24 11 47.4	934	+ 26.7	75 18 35.3	+ 2.0
8	328 48	5.7	2.6	0.0	24.6	37	246	242	. .	. .	. .	58.3	31 8 18.6	. .	+ 30.0	82 15 15.8	− 0.1
9	325 54	3.5	0.8	26.5	23.3	37	. .	642	. .	636	. .	58.3	34 2 22.4	. .	+ 40.2	85 9 23.8	+17.4
10	327 8	6.2	2.1	29.2	24.8	37	. .	618	410	298	. .	58.3	32 48 21.4	. .	+ 38.4	83 55 21.0	
11	341 14	8.2	5.1	1.7	26.5	36	. .	370	. .	370	. .	58.3	18 42 7.3	938	+ 20.2	69 48 48.7	+ 1.5
12	340 54	1.2	29.8	27.0	20.2	38	. .	520	. .	510	. .	56.9	19 2 33.0	938	+ 20.5	70 9 14.7	+ 4.3
13	348 40	29.8	27.5	24.2	18.5	39	. .	140	. .	160	. .	56.9	11 16 40.8	. .	+ 11.9	62 23 13.9	− 1.1
14	302 6	1.5	25.9	22.6	19.8	39	820	810	. .	. .	. .	56.9	57 50 51.0	922	+ 1 34.2	108 58 46.4	
15	302 38	4.7	1.0	27.8	25.3	38	. .	. .	. .	070	090	56.9	57 18 28.3	. .	+ 1 32.2	108 26 21.7	
16	296 30	0.0	27.5	24.7	20.4	35	. .	580	. .	660	. .	56.9	63 25 46.8	. .	+ 1 58.3	114 34 6.3	
17	335 36	29.2	27.5	26.0	19.8	40	. .	010	. .	990	. .	56.9	24 20 54.4	. .	+ 26.9	75 27 42.5	+ 0.7
18	296 12	1.6	29.1	25.8	23.3	34	240	. .	. .	. .	290	56.9	63 43 27.6	. .	+ 2 0.2	114 51 49.0	
19	296 12	1.6	29.1	25.8	23.3	35	. .	350	. .	280	. .	56.9	63 43 44.0	. .	+ 2 0.2	114 52 5.4	−14.0
20	348 50	26.3	24.7	21.5	15.2	34	. .	950	. .	930	. .	56.9	11 5 33.0	. .	+ 11.7	62 12 5.9*	− 0.1
21																	
22	350 44	5.2	3.6	1.3	23.9	32	. .	010	. .	040	. .	57.7	9 10 58.1	950	+ 9.7	60 17 29.0	− 0.6
23	21 14	5.6	4.3	2.3	25.8	31	. .	350	. .	. .	. .	57.7	338 40 49.2	. .	− 23.4	29 46 47.0	+25.2
24																	
25	314 56	5.6	4.1	2.3	27.0	37	. .	860	. .	840	. .	57.7	45 0 28.6	. .	+ 59.9	96 7 49.7	+ 0.9
26	340 44	5.8	4.3	2.3	25.0	34	. .	630	. .	670	. .	57.7	19 11 39.2	. .	+ 20.9	70 18 21.3	+17.6
27	311 24	15.0	11.5	8.9	3.8	37	. .	460	. .	490	. .	57.7	48 32 30.4	. .	+ 1 7.8	99 39 59.4	+ 8.0
28	304 22	5.8	2.6	1.2	25.3	38	. .	. .	. .	070	010	57.7	55 34 30.3	. .	+ 1 27.3	106 42 18.8	+ 5.6
29	306 54	3.8	1.0	27.8	23.0	33	. .	860	. .	830	. .	57.7	53 1 23.7	. .	+ 1 19.6	104 9 4.5	+ 1.9
30																	
31	310 44	4.2	1.8	29.5	24.8	34	. .	680	. .	610	. .	57.7	49 11 37.2	. .	+ 1 9.5	100 19 7.9	
32	312 36	4.2	1.8	29.6	24.6	36	. .	720	. .	750	. .	57.7	47 20 9.3	. .	+ 1 5.1	98 27 35.6	+ 9.8
33	306 52	8.2	5.8	3.2	29.2	31	. .	220	. .	230	. .	57.7	53 2 48.7	. .	+ 1 19.1	104 10 29.0	+ 8.0
34	320 16	9.2	6.2	4.8	29.3	32	. .	520	. .	530	. .	57.7	39 39 9.5	962	+ 49.8	90 46 20.5	− 1.3
35	331 12	3.8	2.5	0.2	23.6	32	. .	030	. .	040	. .	57.7	28 42 57.2	. .	+ 32.9	79 49 51.3	− 1.0
36	306 48	4.0	2.3	29.8	25.0	36	. .	870	. .	920	. .	57.7	53 8 11.9	. .	+ 1 20.2	104 15 53.3	+ 8.9
37	312 48	8.5	6.7	4.8	28.3	35	. .	710	. .	650	. .	57.7	47 7 57.6	. .	+ 1 4.8	98 15 23.6	− 0.5
38	335 34	7.8	5.0	4.0	25.8	35	. .	265	. .	255	. .	57.7	24 21 49.8	. .	+ 27.3	75 28 38.3	− 0.5
39	311 16	11.1	8.5	6.8	1.5	33	. .	240	. .	250	. .	57.7	48 39 22.6	. .	+ 1 8.5	99 46 52.3	+11.4
40	312 38	9.3	5.3	3.7	28.0	35	. .	. .	. .	090	110	57.7	47 17 48.1	. .	+ 1 5.3	98 25 14.6	+11.9
41	315 14	13.7	11.5	9.1	3.6	34	. .	890	. .	820	. .	57.7	44 41 49.8	. .	+ 59.7	95 49 10.7	+12.8
42	321 36	10.1	6.7	5.2	0.0	32	. .	970	. .	910	. .	57.7	38 19 16.5	. .	+ 47.8	89 26 25.5	+15.2
43	321 24	7.8	6.0	4.0	28.0	30	. .	470	. .	440	. .	57.7	38 30 36.9	. .	+ 48.1	89 37 46.2	+15.6
44	316 46	6.5	4.5	2.8	26.5	29	. .	770	. .	730	. .	57.7	43 8 24.7	. .	+ 56.7	94 15 42.6	+14.4
45	317 18	9.0	7.5	4.5	27.8	31	. .	320	. .	330	. .	57.7	42 36 50.9	. .	+ 55.7	93 44 7.8	+14.7
46	190 28	14.2	12.6	9.2	2.5	42	. .	. .	. .	910	800	57.7	169 29 52.6	. .	− 11.2	61 6 39.8	+ 4.6
47	204 22	3.5	3.3	1.4	23.7	41	. .	. .	. .	770	720	57.7	155 35 26.5	985	− 27.5	75 31 21.2	+ 0.4
48	302 22	15.3	11.0	9.0	2.6	32	. .	525	. .	515	. .	57.7	57 33 13.9	. .	+ 1 35.2	108 41 10.3	− 0.4
49	327 40	8.2	5.7	3.5	27.7	38	. .	390	. .	410	. .	57.7	32 16 38.7	. .	+ 38.4	83 23 38.3	+19.9
50	49 38	4.8	4.2	3.2	25.8	31	320	. .	320	. .	340	57.7	310 16 48.5	. .	− 1 11.6	1 21 58.1	− 1.2

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
8	. .	. .	40.0
11	30.052	45.0	40.0
12	29.925	39.0	38.5
14	29.910	40.0	40.0
22	29.970	40.0	36.0
34	. .	. .	34.5
48	30.000	35.0	30.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
8	− 0.1	. .	. .	− 0.1
10	−31 8.7	− 15 47.3	. .	− 46 56.0
14	− 7.6	− 16 12.3	. .	− 16 19.9
15	− 7.5	+ 16 12.3	. .	+ 16 4.8
16	− 6.4	. .	+ 0.1	− 6.3
18	− 5.8	+ 8.2	. .	+ 2.4
19	− 5.8	− 8.2	. .	− 14.0

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Nov. 15	1	94 Piscium . . .	E.	56.9	59.6	1.3	7.6	9.8	12.0	18.5	20.1	23.0	20 9.87	+ 0.29	. .	−20.33	1 19 49.83	− 2.80
	2	η Piscium . . .	E.	48.5	51.0	52.6	59.0	1.2	3.3	9.5	11.1	13.9	25 1.12	+ 0.24	−20.37	−20.33	1 24 41.03	+ 0.11
	3	101 Piscium . . .	E.	6.3	8.8	10.4	16.6	18.9	21.0	27.3	28.8	31.5	29 18.84	+ 0.23	. .	−20.33	1 28 58.74	− 2.82
	4	Neptune I, C. .	E.	8.0	10.5	12.0	. .	. .	. .	28.7	30.1	32.7	32 20.33	+ 0.15	. .	−20.33	1 32 0.15	. .
	5	Neptune II . .	E.	. .	. .	16.5	18.5	20.6	22.6	24.6	. .	. .	32 20.56	+ 0.16	. .	−20.33	1 32 0.39	. .
	6	o Piscium . . .	E.	48.8	51.4	52.9	59.0	1.2	3.3	9.4	10.9	13.6	39 1.17	+ 0.16	−20.29	−20.33	1 38 41.00	− 0.07
	7	β Arietis . . .	E.	44.3	47.0	48.6	55.0	57.4	59.5	5.9	7.5	10.3	47 57.28	+ 0.31	−20.29	−20.34	1 47 37.25	− 0.03
16	8	33 Tauri	F.	39.0	42.0	43.5	50.0	52.4	54.5	1.0	2.9	5.7	49 52.33	+ 0.47	. .	−20.87	3 49 31.93	− 3.33
	9	A[1] Tauri	F.	18.4	21.2	22.7	29.4	31.5	33.7	40.3	42.0	44.8	57 31.56	+ 0 46	. .	−20.88	3 57 11.14	− 3.31
	10	48 Tauri	F.	41.4	44.0	45.6	52.0	54.0	56.2	2.6	4.0	6.8	8 54.07	+ 0.37	. .	−20.88	4 8 33.56	− 3.20
	11	ε Tauri	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	12	B. A. C. 1391 . .	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	13	B. A. C. 1394 . .	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	14	ι Aurigæ . . .	F.	48.7	51.9	53.7	1.0	3.5	5.8	13.2	15.0	18.0	49 3.42	+ 0.64	−20.89	−20.89	4 48 43.17	− 0.06
	15	11 Orionis . . .	F.	26.3	29.0	30.5	37.0	39.0	41.1	47.5	49.0	51.7	57 39.01	+ 0.37	−20.85	−20.89	4 57 18.49	− 0.11
	16	ε Ursæ Minoris, S. P.	F.	. .	. .	54.0	38.5	23.0	. .	. .	. .	. .	59 23.23	− 5.11	. .	−20.90	4 58 57.22	− 0.42
	17	β Orionis . . .	F.	34.5	37.0	38.6	44.9	46.9	49.0	55.1	56.8	59.3	8 46.90	+ 0.08	−20.91	−20.90	5 8 26.08	+ 0.01
	18	Moon II, N. . .	F.	4.7	7.5	9.2	16.0	18.2	20.6	27.5	29.2	32.1	15 18.33	+ 0.50	. .	−20.90	5 14 57.93	−69.33
	19	δ Orionis . . .	F.	39.4	42.0	43.5	49.6	51.6	53.6	59.8	1.4	4.0	25 51.66	+ 0.17	−20.86	−20.90	5 25 30.93	− 0.07
	20	δ Ursæ Minoris, S. P.	F.	. .	. .	50.0	16.5	. .	5.8	32.5	. .	. .	13 41.25	−12.00	. .	−20.92	6 13 8.33	− 0.12
18	21	Moon II . . .	S.	49.0	53.7	58.2	50.5	2.9	5.2	7.6	12.3	17.0	8 2.93	+ 1.09	. .	−21.52	7 7 42.50	−69.01
	22	τ Draconis, S. P. .	S.	. .	. .	34.0	26.8	19.8	12.7	5.1	. .	. .	18 19.68	− 1.73	. .	−21.52	7 17 56.43	+ 0.26
	23	a^1 Geminorum . .	S.	35.0	38.0	39.7	. .	. .	. .	59.0	0.7	3.9	26 48.38	+ 0.71	. .	−21.52	7 26 27.57	. .
	24	a^2 Geminorum . .	S.	. .	. .	45.0	47.3	49.7	52.1	54.6	. .	. .	. . .	+ 0.71	−21.54	−21.52	7 26 28.93	+ 0.26
	25	a Canis Minoris .	S.	. .	. .	. .	59.6	1.8	3.8	7.8	9.4	12.0	32 59.66	+ 0.39	−21.55	−21.52	7 32 38.53	− 0.13
	26	λ Ursæ Minoris, S. P.	S.	. .	. .	35.0	41.0	54.0	6.0	17.0	. .	. .	51 54.60	−31.47	. .	−21.53	7 51 1.60	+ 0.45
	27	θ Ursæ Majoris . .	S.	. .	. .	33.7	37.0	40.3	43.5	47.0	. .	. .	20 40.30	+ 1.11	. .	−21.53	9 20 19.88	+ 0.13
	28	ε Leonis	S.	44.5	47.3	49.0	55.6	57.9	0.0	7.0	8.6	11.2	38 57.90	+ 0.60	−21.47	−21.53	9 38 36.97	− 0.12
	29	μ Leonis	S.	38.1	41.0	42.7	49.5	51.9	54.0	1.0	2.6	5.4	45 51.80	+ 0.63	−21.57	−21.54	9 45 30.89	+ 0.02
	30	79 Draconis, S. P. .	S.	21.9	12.9	7.1	53.5	46.5	. .	. .	. .	. .	51 39.64	− 1.73	. .	−21.54	21 51 16.41	+ 0.43
	31	a Leonis	S.	. .	. .	. .	. .	58.2	0.4	. .	6.0	8.7	1 56.13	+ 0.46	−21.58	−21.54	10 1 35.05	0.00
	32	ζ Leonis	S.	43.4	46.4	48.0	54.7	56.8	59.0	5.9	7.5	10.3	9 56.89	+ 0.59	. .	−21.55	10 9 35.93	− 1.89
	33	γ^1 Leonis	S.	4.4	7.2	8.9	15.3	17.6	19.8	26.3	27.8	30.7	13 17.56	+ 0.55	−21.52	−21.55	10 12 56.56	− 0.05
	34	Polaris, S. P. . .	E.	. .	. .	24.5	0.5	33.0	. .	. .	. .	. .	13 33.67	−30.75	. .	−21.57	1 12 41.35	+ 0.10
	35	a Virginis . . .	E.	36.8	39.5	41.0	47.3	49.4	51.4	57.6	59.0	1.8	18 49.31	+ 0.07	−21.58	−21.57	13 18 27.81	− 0.01
	36	ζ Virginis . . .	E.	20.0	22.6	24.3	30.3	32.4	34.4	40.5	42.0	44.6	28 32.34	+ 0.07	−21.43	−21.57	13 28 10.84	− 0.14
	37	η Bootis	E.	44.0	46.8	48.5	55.0	57.0	59.3	5.6	7.3	10.0	48 57.06	+ 0.33	−21.51	−21.58	13 48 35.81	− 0.12
	38	a Bootis	E.	58.0	0.7	2.3	8.7	11.0	13.2	19.7	21.3	24.0	10 10.99	+ 0.34	−21.60	−21.58	14 9 49.75	+ 0.02
	39	ε Bootis	E.	31.2	34.0	35.8	42.8	45.0	47.4	54.3	56.0	58.9	39 45.04	+ 0.46	−21.52	−21.58	14 39 23.92	− 0.08
	40	β Bootis	E.	. .	. .	22.5	25.3	28.0	30.7	33.4	. .	. .	57 27.98	+ 0.73	. .	−21.59	14 57 7.12	− 0.03
19	41	Sun I, N. . . .	E.	47.3	50.0	51.7	58.0	0.3	2.4	9.0	10.7	13.4	41 0.31	− 0.19	. .	−21.59	15 40 38.53	. .
	42	Sun II, S. . . .	E.	5.0	8.2	9.8	16.3	18.5	20.6	27.4	28.9	31.7	43 18.49	− 0.20	. .	−21.59	15 42 56.70	. .
	43	a Herculis . . .	E.	57.8	0.4	1.9	8.1	10.3	12.5	18.9	20.4	23.0	8 10.37	+ 0.26	−21.70	−21.60	17 7 49.03	+ 0.12
	44	a Ophiuchi . . .	E.	8.8	11.4	13.0	19.3	21.4	23.4	29.7	31.3	33.9	29 21.36	+ 0.24	−21.70	−21.60	17 29 0.00	+ 0.13
	45	μ Herculis . . .	E.	. .	. .	43.5	45.8	48.1	50.5	52.9	. .	. .	41 48.16	+ 0.46	−21.70	−21.60	17 41 27.02	+ 0.10
	46	δ Ursæ Minoris .	E.	33.0	8.0	7.0	42.0	16.5	51.0	26.0	25.5	0.5	13 16.61	+12.21	. .	−21.60	18 13 7.21	− 0.40
20	47	35 Capricorni. . .	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	48	γ Capricorni. . .	F.	10.9	13.5	15.2	21.5	23.7	25.8	32.3	34.0	36.6	33 23.72	− 0.26	. .	−21.91	21 33 1.55	− 1.74
	49	λ Capricorni. . .	F.	50.0	52.7	54.0	0.3	2.4	4.5	10.9	12.3	15.0	40 2.46	− 0.18	. .	−21.91	21 39 40.37	− 1.71
	50	μ Capricorni. . .	F.	30.2	32.9	34.4	40.8	42.9	45.0	51.3	52.9	55.5	46 42.88	− 0.21	−21.91	−21.91	21 46 20.76	+ 0.03

22, 27, 40. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	339 38	3.4	1.5	29.3	21.8	37	. .	510	. .	560	. .	57.7	20 18 20.7	. .	+ 22.5	71 25 4.4	+19.9
2	335 44	5.2	3.0	2.0	24.3	35	. .	080	. .	040	. .	57.7	24 11 44.7	. .	+ 27.3	75 18 33.2	0.0
3	335 4	10.0	8.5	6.7	29.0	37	. .	480	. .	540	. .	57.7	24 52 27.3	. .	+ 28.2	75 59 16.7	+19.0
4	328 46	11.2	8.4	5.8	29.2	34	. .	730	. .	700	. .	57.7	31 9 44.4	. .	+ 36.8	82 16 42.4	
5																	
6	329 34	8.1	5.3	4.0	26.3	35	. .	800	. .	820	. .	57.7	30 21 58.5	. .	+ 35.7	81 28 55.4	— 1.1
7	341 14	6.8	5.3	2.3	22.0	36	. .	280	. .	330	. .	57.7	18 42 4.4	998	+ 20.6	69 48 46.2	— 0.8
8	343 50	11.8	9.3	7.4	0.8	31	. .	580	. .	584	. .	59.4	16 4 59.4	1056	+ 17.8	67 11 38.4	+13.6
9	342 48	9 23.4	21.5	16.7	11.1	41	. .	860	. .	860	. .	59.4	17 9 18.1	. .	+ 19.0	68 15 58.3	+13.1
10	336 8	4.4	2.3	29.4	23.5	37	090	092	. .	. .	. .	59.4	23 48 16.6	. .	+ 27.2	74 55 5.0	+12.7
11	339 56	5.5	2.5	0.9	24.9	33	720	726	. .	. .	. .	59.4	19 59 26.0	. .	+ 22.4	71 6 9.6	+ 1.9
12	336 56	24.9	22.5	20.3	14.2	29	610	614	. .	. .	. .	59.4	22 58 12.5	. .	+ 26.2	74 4 59.9	+11.8
13	336 56	24.9	22.5	20.3	14.2	40	. .	. .	. .	070	090	59.4	23 0 53.0	. .	+ 26.2	74 7 40.4	+11.8
14	354 0	9 29.7	27.0	26.0	20.4	35	. .	. .	. .	340	346	59.4	5 55 45.7	1060	+ 6.4	57 2 13.3	+ 1.3
15																	
16																	
17																	
18	345 34	6.6	5.1	2.8	26.5	34	. .	540	270	200	. .	59.4	14 21 37.0	1060	+ 15.8	65 28 14.0	
19	320 40	4.8	2.2	0.0	24.5	37	. .	490	. .	500	. .	59.4	39 16 23.1	1060	+ 50.5	90 23 34.8	— 0.6
20	54 24	8.9	8.0	6.4	28.9	34	. .	186	. .	190	. .	59.4	305 31 37.4	1066	— 1 26.4	356 36 32.5	0.0
21																	
22	67 54	7.6	4.1	2.5	28.1	41	484	. .	. .	. .	. .	59.1	292 3 26.6	1050	— 2 31.9	343 7 15.9	— 1.1
23	353 12	9.5	6.0	3.8	28.5	34	. .	. .	. .	481	. .	59.1	6 43 40.7	. .	+ 7.3	57 50 9.2	
24	353 12	9.5	6.0	3.8	28.5	34	. .	. .	. .	. .	241	59.1	6 43 37.3	. .	+ 7.3	57 50 5.8	+ 1.0
25																	
26	52 6	4.9	1.5	28.8	24.8	38	. .	796	793	778	. .	59.1	307 50 42.2	1052	— 1 19.7	358 55 43.7	+ 1.8
27	13 18	2.0	1.2	28.0	22.0	38	800	. .	. .	. .	734	59.1	346 38 40.4	. .	— 14.7	37 44 46.9	0.0
28	345 24	13.5	11.3	8.8	3.5	34	. .	736	. .	670	. .	59.1	14 31 49.0	1058	+ 16.1	65 38 26.2	+ 0.4
29	347 40	1.4	1.5	27.8	23.4	40	. .	448	. .	440	. .	59.1	12 17 6.4	. .	+ 13.2	63 23 40.8	0.0
30	67 54	5.7	3.1	1.5	27.5	37	. .	. .	. .	630	756	59.1	292 2 25.6	1059	— 2 32.4	343 6 14.4	— 1.6
31	333 38	1.1	0.0	27.1	22.6	35	. .	106	. .	140	. .	59.1	26 17 43.8	. .	+ 30.7	77 24 35.6	— 0.5
32	345 6	10.2	8.4	5.5	29.0	36	. .	880	. .	872	. .	59.1	14 50 18.8	. .	+ 16.5	65 56 56.6	—12.2
33	341 32	5.5	3.7	1.1	25.1	36	. .	642	. .	696	. .	59.1	18 24 11.2	1061	+ 20.7	69 30 53.1	+ 0.1
34	52 24	8.6	4.5	1.0	25.0	39	790	. .	790	. .	. .	60.1	307 33 0.8	. .	— 1 18.9	358 38 3.1	+ 1.2
35	310 34	13.0	8.0	7.0	1.6	35	. .	920	. .	890	. .	60.1	49 22 6.3	1013	+ 1 10.6	100 29 38.1	+ 1.0
36	321 6	4.0	1.1	0.2	24.6	33	. .	680	. .	650	. .	60.1	38 49 24.5	. .	+ 48.7	89 56 34.4	+ 1.8
37	340 4	7.5	3.9	2.5	25.8	32	. .	. .	. .	190	. .	60.1	19 51 4.4	. .	+ 21.8	70 57 47.4	+ 2.1
38	340 54	4.8	2.6	1.5	23.5	38	. .	080	. .	060	. .	60.1	19 2 32.9	996	+ 20.8	70 9 14.9	+ 3.4
39	348 40	29.0	26.0	22.0	15.5	39	. .	370	. .	350	. .	60.1	11 16 45.3	. .	+ 12.0	62 23 18.5	+ 2.9
40	1 56	4.8	3.0	0.0	22.0	36	270	. .	. .	. .	290	60.1	358 0 4.7	. .	— 2.1	49 6 23.8	+ 0.6
41	301 40	6.2	1.3	29.7	26.5	35	490	550	. .	. .	. .	60.1	58 15 54.1	946	+ 1 35.4	109 23 50.7	
42	301 8	7.5	1.3	2.1	28.0	37	. .	. .	. .	325	300	60.1	58 48 22.2	. .	+ 1 37.5	109 56 20.7	
43	335 36	4.3	29.7	28.7	21.9	39	. .	870	. .	850	. .	60.1	24 20 58.5	. .	+ 26.3	75 27 46.0	+ 3.4
44	333 42	0.4	29.0	27.8	20.0	35	. .	750	. .	730	. .	60.1	26 13 53.3	. .	+ 28.5	77 20 43.0	+ 2.6
45	348 50	9 27.0	23.8	23.0	14.5	35	. .	060	. .	050	. .	60.1	11 5 38.1	. .	+ 11.3	62 12 10.6	+ 3.7
46	47 38	5.0	5.5	4.0	26.0	36	500	. .	530	. .	500	60.1	312 18 11.0	. .	— 1 3.0	3 23 29.2	+ 1.1
47	299 20	3.9	29.5	27.7	23.7	38	. .	. .	. .	920	916	59.3	60 36 42.9	. .	+ 1 48.0	111 44 52.1	+ 2.8
48	303 50	11.7	6.2	4.7	0.7	37	. .	286	. .	296	. .	59.3	56 6 25.2	1016	+ 1 30.6	107 14 17.0	+ 4.8
49	309 6	4.8	0.3	29.3	24.7	34	. .	390	. .	398	. .	59.3	50 49 34.7	. .	+ 1 14.8	101 57 10.7	+ 7.0
50	306 55	{ 8 7.5 / 12 9.1	4.2	1.4	27.4 / 28.3	37	. .	. .	. .	300	304	59.3	53 1 22.5	. .	+ 1 20.9	109 9 4.6	+ 1.7

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
7	30.015	34.0	29.0
8	30.205	30.5	26.2
19	30.258	30.0	25.8
20	30.254	29.5	25.8
33	30.070	24.2	20.2
35	30.100	31.5	32.5
38	30.090	34.0	35.0
41	30.028	38.0	43.0
43	30.000	42.5	. .
48	30.080	34.5	29.4

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
5	— 0.1	. .	. .	— 0.1
18	—13 36.0	+ 15 10.8	. .	+ 1 34.8
41	— 7.6	+ 16 15.0	. .	+ 16 7.4
42	— 7.6	— 16 15.0	. .	— 16 22.6

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Nov. 20	1	α Aquarii. . . .	F.	24.0	26.6	28.0	34.3	36.2	38.2	44.4	45.9	48.6	59 36.24	− 0.02	−21.96	−21.91	21 59 14.31	+ 0.08
	2	B. A. C. 7953 . .	F.	17.8	22.5	25.3	36.7	40.7	44.5	55.9	59.0	3.6	42 40.67	+ 1.34	. .	−21.93	22 42 20.08	− 1.35
	3	α Pegasi	F.	34.2	36.9	38.4	44.7	46.8	48.9	55.3	56.9	59.6	58 46.86	+ 0.22	−21.97	−21.93	22 58 25.15	+ 0.07
	4	O. Arg. S. 22721 .	F.	0.0	2.7	4.3	11.0	13.1	15.3	22.0	23.7	26.5	10 13.18	− 0.33	. .	−21.93	23 9 50.92	− 2.30
	5	γ Cephei, (R.) . .	F.	37.8	49.4	56.0	23.0	32.0	41.2	8.8	15.0	16.4	34 32.18	. .	. .	. .	. . . .	. .
	6	ω Piscium . . .	F.	56.0	58.9	0.5	6.5	8.5	10.6	16.7	18.3	20.9	53 8.54	+ 0.09	−21.94	−21.94	23 52 46.69	+ 0.01
	7	30 Piscium . . .	F.	35.8	38.4	39.9	46.0	48.0	50.2	56.3	58.0	0.4	55 48.11	− 0.10	. .	−21.94	23 55 26.07	− 2.38
	8	γ Pegasi	F.	50.3	53.0	54.4	0.8	3.0	5.0	11.3	13.0	15.6	7 2.93	+ 0.22	−22.00	−21.95	0 6 41.20	+ 0.05
	9	44 Piscium . . .	F.	2.7	5.3	6.8	12.9	15.0	17.0	23.0	24.6	27.0	19 14.92	+ 0.02	. .	−21.95	0 18 52.99	− 2.46
	10	B. A. C. 221 . .	F.	52.4	55.0	56.5	2.7	4.7	6.7	12.9	14.4	17.0	42 4.70	+ 0.07	. .	−21.95	0 41 42.82	− 2.56
	11	ξ Piscium . . .	F.	14.9	17.6	19.0	25.3	27.3	29.4	35.5	37.0	39.6	7 27.29	+ 0.10	. .	−21.96	1 7 5.43	− 2.68
	12	Polaris	F.	. .	. .	36.0	3.0	. .	53.0	26.0	. .	. .	12 26.80	+36.36	. .	−21.96	1 12 41.20	+ 0.86
	13	θ Ceti. . . .	F.	. .	. .	. .	. .	4.5	6.4	10.6	12.2	14.8	18 2.36	− 0.13	−21.95	−21.96	1 17 40.27	+ 0.01
	14	94 Piscium . . .	F.	58.6	1.4	3.0	9.4	11.5	13.7	20.3	21.8	24.6	20 11.59	+ 0.28	. .	−21.96	1 19 49.91	− 2.79
	15	η Piscium . . .	F.	. .	. .	. .	. .	. .	. .	11.0	12.7	15.3	25 2.62	+ 0.22	−21.86	−21.96	1 24 40.88	− 0.03
	16	Neptune . . .	F.	44.2	46.7	48.3	54.5	56.7	58.7	4.8	6.3	9.0	31 56.58	+ 0.12	. .	−21.97	1 31 34.73	. .
	17	ε Hydræ . . .	F.	11.7	14.3	15.8	21.9	24.0	26.0	32.2	33.8	36.4	40 24.01	+ 0.13	−22.05	−22.08	8 40 2.06	− 0.07
	18	Moon II, S. . .	F.	6.6	9.4	11.0	17.8	20.2	22.3	29.0	30.7	33.7	55 20.08	+ 0.37	. .	−22.08	8 54 58.37	−66.35
	19	κ Cancri	F.	0.4	3.0	4.5	10.8	12.9	15.0	21.0	22.7	25.4	1 12.86	+ 0.20	−22.07	−22.08	9 0 50.98	− 0.02
	20	β Cephei, S. P. .	F.	. .	. .	35.7	29.4	23.7	17.7	11.9	. .	. .	27 23.68	− 2.41	. .	−22.09	21 26 59.18	+ 0.01
	21	ε Leonis	F.	45.4	48.2	49.9	56.7	58.8	1.0	7.8	9.5	12.2	38 58.83	+ 0.42	−22.15	−22.09	9 38 37.16	0.00
	22	μ Leonis	F.	. .	. .	. .	. .	. .	. .	1.6	3.4	6.2	45 52.51	+ 0.38	−21.96	−22.09	9 45 30.80	− 0.14
	23	α Leonis, (R.) . .	F.	. .	. .	53.9	56.0	58.0	0.1	2.2	. .	. .	1 58.04	− 0.75	. .	−22.10	10 1 35.19	+ 0.07
	24	Jupiter I, N. . .	F.	27.9	30.5	32.1	. .	. .	. .	48.8	50.3	53.0	11 40.43	+ 0.22	. .	−22.10	10 11 18.55	. .
	25	Jupiter II, S. . .	F.	. .	. .	39.0	41.0	43.0	45.3	47.4	. .	. .	11 43.14	+ 0.22	. .	−22.10	10 11 21.26	. .
	26	γ^1 Leonis	F.	5.4	8.0	9.8	16.2	18.4	20.5	27.2	28.9	31.6	13 18.44	+ 0.35	−22.13	−22.10	10 12 56.69	+ 0.01
22	27	Polaris, S. P. . .	E.	3.5	. .	23.5	56.5	32.0	. .	. .	. .	. .	13 31.30	−28.28	. .	−23.35	1 12 39.67	+ 0.89
	28	α Virginis . . .	E.	38.9	41.6	43.2	49.3	51.4	53.4	59.6	1.0	3.9	18 51.37	− 0.11	−23.37	−23.36	13 18 27.90	− 0.01
	29	ζ Virginis . . .	E.	22.0	24.8	26.2	32.4	34.4	36.5	42.6	44.0	46.6	28 34.39	+ 0.03	−23.35	−23.36	13 28 11.06	− 0.01
	30	η Bootis	E.	46.0	48.8	50.5	56.9	59.0	1.2	7.6	9.2	12.0	48 59.02	+ 0.27	−23.33	−23.36	13 48 35.93	− 1.08
	31	α Bootis	E.	0.0	2.7	4.4	10.8	13.0	15.1	21.6	23.3	26.0	10 12.99	+ 0.28	−23.46	−23.37	14 9 49.90	+ 0.09
	32	ε Bootis	E.	33.3	36.0	37.8	44.6	47.0	49.4	56.3	58.0	1.0	39 47.04	+ 0.40	−23.40	−23.38	14 39 24.06	0.00
23	33	Sun I, N. . . .	E.	38.6	41.4	42.9	49.5	51.7	53.8	0.4	2.0	4.9	57 51.69	− 0.25	. .	−23.40	15 57 28.04	. .
	34	Sun II, S. . . .	E.	57.7	0.3	2.0	8.5	10.7	13.0	19.7	21.4	24.0	0 10.81	− 0.25	. .	−23.40	15 59 47.16	. .
	35	Mercury I, C. . .	E.	55.9	58.9	0.6	7.4	9.8	12.0	18.6	20.4	23.3	28 9.66	− 0.23	. .	−23.43	17 27 46.00	+ 0.22
	36	μ Herculis . . .	E.	36.0	39.0	40.7	47.5	49.8	52.2	59.2	1.0	3.8	41 49.91	+ 0.40	−23.41	−23.43	17 41 26.88	− 0.02
	37	γ Draconis . . .	E.	40.0	44.1	46.5	56.3	59.5	2.9	12.8	15.0	19.2	53 59.59	+ 0.90	. .	−23.43	17 53 37.06	+ 0.02
	38	δ Ursæ Minoris . .	E.	. .	. .	. .	46.5	20.0	54.0	29.0	. .	. .	13 20.05	+11.51	. .	−23.44	18 13 8.12	+ 1.66
	39	Venus I, S. . .	E.	39.2	42.0	43.7	50.4	52.7	55.0	1.8	3.4	6.3	22 52.72	− 0.32	. .	−23.44	18 22 28.96	+ 0.38
	40	Venus, N. . . .	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	41	α Lyræ	E.	43.2	46.5	48.5	56.2	59.0	1.6	9.4	11.4	14.6	32 58.93	+ 0.59	−23.51	−23.44	18 32 36.08	+ 0.09
	42	β Lyræ	E.	29.5	32.6	34.6	41.8	44.2	46.7	54.0	55.8	59.0	45 44.24	+ 0.49	−23.50	−23.45	18 45 21.28	+ 0.08
	43	ζ Cygni	E.	39.3	42.2	44.0	51.0	53.4	55.8	2.8	4.5	7.4	7 53.38	+ 0.44	−23.59	−23.49	21 7 30.33	+ 0.11
	44	35 Capricorni. . .	E.	. .	. .	20.0	22.4	24.6	26.9	29.0	. .	. .	20 24.58	− 0.25	. .	−23.49	21 20 0.84	− 1.69
	45	β Aquarii. . . .	E.	2.0	4.5	6.0	12.3	14.3	16.3	22.5	24.4	26.6	25 14.32	− 0.04	−23.56	−23.49	21 24 50.79	+ 0.10
	46	γ Capricorni. . .	E.	12.4	15.0	16.6	23.0	25.1	27.4	33.8	35.4	37.9	33 25.18	+ 0.19	. .	−23.49	21 33 1.50	− 1.70
	47	ε Pegasi	E.	6.3	9.0	10.5	14.8	18.9	23.0	27.0	28.5	31.1	38 18.79	+ 0.15	−23.53	−23.49	21 37 55.45	+ 0.05
	48	δ Capricorni. . .	E.	11.0	13.7	15.5	21.7	23.9	26.0	32.4	34.0	36.7	40 23.88	− 0.18	. .	−23.49	21 40 0.21	− 1.73
	49	μ Capricorni. . .	E.	31.8	34.3	36.0	42.2	44.4	46.5	52.7	54.3	57.0	46 44.36	− 0.14	−23.50	−23.50	21 46 20.72	+ 0.03
	50	α Aquarii, (R.) . .	E.	. .	. .	. .	38.5	40.5	42.6	. .	48.0	50.6	59 38.42	− 0.73	. .	−23.50	21 59 14.19	0.00

2, 20, 44. Bisections at sets B and D.
27. Bisections at wires B_1 and B_2.
50. Bisections at wires C_2 and D_3.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	320 6	11.4	7.3	5.2	1.5	31	. .	820	. .	820	. .	59.3	39 49 1.8	. .	+ 51.0	90 56 14.0	− 0.4
2	18 50	11.2	8.5	6.7	0.5	31	. .	. .	. .	794	784	59.3	341 5 1.8	1040	− 21.1	32 11 2.0	+28.3
3	335 34	8.3	4.5	2.9	25.7	35	. .	310	. .	313	. .	59.3	24 21 52.0	. .	+ 27.8	75 28 41.0	+ 2.1
4	299 10	7.9	3.4	1.6	27.2	30	540	495	. .	. .	. .	59.3	60 44 37.9	. .	+ 1 49.5	111 52 48.6	+ 6.9
5	141 54	10.2	6.4	5.6	2.1	32	. .	366	. .	308	. .	59.3	218 1 8.1	1044	+ 48.1	13 4 25.0	− 0.2
6	327 12	4.1	0.0	27.3	22.8	33	. .	. .	. .	900	906	59.3	32 43 26.0	. .	+ 39.6	83 50 26.8	+ 1.5
7	314 20	7.7	3.5	1.9	27.4	35	. .	. .	. .	550	558	59.3	45 36 55.3	. .	+ 1 2.9	96 44 19.4	+13.3
8	335 30	6.1	2.9	1.3	24.8	30	. .	. .	. .	274	276	59.3	24 24 33.1	. .	+ 28.0	75 31 22.3	+ 1.5
9	322 18	8.7	4.4	2.3	28.1	38	794	806	. .	. .	. .	59.3	37 38 46.2	1053	+ 47.5	88 45 54.9	+16.1
10	325 40	4.8	0.4	28.5	23.2	33	. .	518	. .	518	. .	59.3	34 15 20.8	. .	+ 42.0	85 22 24.0	+17.2
11	327 58	5.0	0.5	28.2	23.2	39	. .	304	. .	300	. .	59.3	31 58 49.7	. .	+ 38.5	83 5 49.4	+17.8
12	49 38	8.7	6.1	5.0	28.3	31	. .	016	016	016	. .	59.3	310 16 47.7	. .	− 1 12.8	1 21 56.1	− 1.5
13							. .										
14	339 38	7.0	4.0	1.7	25.8	37	. .	228	. .	. .	. .	59.3	20 18 20.8	. .	+ 22.0	71 25 4.9	+20.1
15	335 44	1.7	28.0	26.4	29.5	35	. .	. .	. .	335	320	59.3	24 11 48.3	1072	+ 27.8	75 18 37.3	+ 4.2
16	328 44	9 28.3	22.4	21.2	15.7	36	. .	920	. .	924	. .	59.3	31 12 5.8	. .	+ 37.5	82 19 4.5	
17	327 56	9 23.7	19.1	17.8	12.3	35	. .	990	. .	000	. .	59.6	31 59 48.1	. .	+ 40.1	83 6 49.4	+ 0.5
18	343 2	9.0	5.5	3.5	28.2	31	. .	536	720	940	. .	59.6	16 52 58.5	. .	+ 19.5	67 59 39.2	
19	332 14	8.8	5.2	3.1	28.2	36	. .	764	. .	754	. .	59.6	27 42 15.4	1110	+ 33.8	78 49 10.4	+ 0.9
20	71 0	2.8	0.2	27.7	23.1	39	. .	. .	. .	. .	254	59.6	288 56 48.1	. .	− 3 5.6	340 0 3.7	−18.1
21	345 24	6.7	5.1	3.3	26.2	35	. .	166	. .	162	. .	59.6	14 31 50.0	1106	+ 16.7	65 38 27.9	+ 1.7
22	347 38	9 29.0	27.8	24.6	18.2	32	. .	. .	. .	986	932	59.6	12 17 8.3	1106	+ 13.7	63 23 43.2	+ 2.0
23																	
24	333 12	9 29.5	25.4	23.9	18.6	39	478	482	. .	. .	. .	59.6	26 44 47.9	. .	+ 31.8	77 5 40.9	
25	333 12	9 29.5	25.4	23.9	18.6	42	. .	. .	. .	050	150	59.6	26 45 28.0	. .	+ 31.8	77 52 21.0	
26	341 32	7.5	4.3	2.2	26.0	36	. .	. .	. .	675	677	59.6	18 24 12.9	1112	+ 21.0	69 30 55.1	− 3.3
27	52 24	2.0	0.8	28.0	21.2	40	. .	. .	. .	345	300	58.6	307 33 0.6	962	− 1 17.9	358 38 3.9	+ 0.7
28	310 34	9.0	4.8	1.6	28.0	36	. .	360	. .	340	. .	58.6	49 22 7.6	. .	+ 1 9.8	100 29 38.6	+ 0.9
29	321 6	2.0	28.5	23.8	20.6	34	. .	020	. .	010	. .	58.6	38 49 24.6	. .	+ 48.2	89 56 34.0	+ 0.7
30	340 4	4.1	2.8	1.6	23.0	32	. .	430	. .	420	. .	58.6	19 51 4.5	. .	+ 21.6	70 57 47.3	+ 0.9
31	340 54	2.5	0.0	28.5	19.3	38	. .	360	. .	320	. .	58.6	19 2 32.6	. .	+ 20.7	70 9 14.5	+ 1.8
32	348 40	0.0	28.5	27.2	17.5	39	. .	270	. .	260	. .	58.6	11 16 45.1	948	+ 11.9	62 23 18.2	+ 1.4
33	300 48	10 0.0	26.0	24.0	18.2	35	030	030	. .	. .	. .	58.6	59 7 38.7	. .	+ 1 39.7	110 15 39.6	
34	300 16	10 21.1	14.9	16.2	8.7	35	. .	. .	. .	500	540	58.6	59 40 6.2	. .	+ 1 41.9	110 48 9.3	
35	295 20	5.0	2.5	1.7	24.5	38	. .	730	. .	690	. .	58.6	64 36 41.4	. .	+ 2 5.5	115 45 8.1	
36	348 50	2.7	2.0	2.0	20.8	34	. .	810	. .	790	. .	58.6	11 5 40.0	. .	+ 11.7	62 12 12.9	+ 5.0
37	12 32	3.4	3.5	3.3	23.0	34	. .	160	. .	140	. .	58.6	347 23 31.7	. .	− 13.4	38 29 39.5	+ 1.4
38	47 38	3.0	4.0	4.0	24.2	36	. .	840	. .	820	. .	58.6	312 18 13.0	. .	− 1 5.7	3 23 28.5	− 0.8
39	295 58	10.5	9.0	9.5	0.5	34	830	. .	. .	. .	720	58.6	63 57 47.2	. .	+ 2 1.9	115 6 10.3	
40	295 58	10.5	9.0	9.5	0.5	33	. .	940	. .	960	. .	58.6	63 57 34.7	. .	+ 2 2.0	115 5 57.9	
41	359 42	9.3	9.1	7.7	28.3	34	. .	030	. .	040	. .	58.6	0 13 35.1	. .	+ 0.2	51 19 56.5	+ 1.9
42	354 16	10.6	10.7	10.5	29.3	37	. .	510	. .	530	. .	58.6	5 40 30.3	. .	+ 6.0	56 46 57.5	+ 1.8
43	350 44	14.5	11.2	10.2	1.8	31	. .	580	. .	560	. .	59.2	9 11 1.1	. .	+ 9.7	60 17 32.0	+ 1.8
44	299 20	10.0	6.1	5.2	29.5	38	630	. .	. .	. .	670	59.2	60 36 45.4	. .	+ 1 46.2	111 44 52.8	+ 2.6
45	314 56	13.3	9.3	8.8	2.3	37	. .	520	. .	570	. .	59.2	45 0 31.7	. .	+ 1 0.0	96 7 52.9	+ 3.6
46	303 50	12.0	7.8	6.5	1.0	37	. .	360	. .	390	. .	59.2	56 6 27.4	. .	+ 1 29.1	107 14 17.7	+ 4.7
47	330 20	0.8	28.3	26.1	17.7	34	. .	550	. .	570	. .	59.2	29 35 33.2	. .	+ 34.1	80 42 28.5	+ 4.6
48	304 22	15.3	10.0	10.8	3.6	37	. .	480	. .	450	. .	59.2	55 34 31.9	. .	+ 1 27.4	106 42 20.5	+ 5.1
49	306 54	8.8	4.4	3.8	27.0	33	. .	550	. .	580	. .	59.2	53 1 25.5	. .	+ 1 19.6	104 9 6.3	+ 3.2
50	219 46	12.8	9.0	7.2	1.5	39	. .	200	. .	240	. .	59.2	140 10 56.6	. .	− 50.0	90 56 14.6	0.0

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
2	. .	. .	26.0
9	. .	. .	25.0
15	30.18	31.0	24.3
19	30.23	25.0	16.8
21	30.22	23.0	16.8
22	30.22	23.0	16.8
26	30.21	24.0	16.0
27	30.200	40.0	40.5
32	30.220	41.5	41.0
34	30.195	43.0	
40	30.185	48.0	
46	30.180	44.0	

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
16	− 0.2	. .	. .	− 0.2
18	−15 33.2	− 14 47.9	. .	− 30 21.1
24	− 0.7	+ 20.0	. .	+ 19.3
25	− 0.8	− 20.0	. .	− 20.8
33	− 7.7	− 16 14.8	. .	+ 16 7.1
34	− 7.8	+ 16 14.8	. .	− 16 22.6
35	− 7.2	+ 0.1	. .	− 7.1
39	− 6.1	− 6.2	. .	− 12.3
40	− 6.1	+ 6.2	. .	+ 0.1

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Nov. 23	1	32 Ursæ Minoris, S.P.	E.	. .	. .	21.0	15.8	10.8	5.9	0.7	. .	. .	9 10.84	— 1.47	. .	—23.50	10 9 45.87	+ 0.02
	2	θ Aquarii. . . .	E.	. .	. .	26.0	28.0	30.1	32.2	34.2	. .	. .	10 30.10	— 0.06	—23.53	—23.50	22 10 6.54	+ 0.05
	3	50 Aquarii. . . .	E.	. .	. .	56.8	58.9	1.0	3.2	5.3	. .	. .	18 1.04	— 0.14	. .	—23.50	22 17 37.40	— 1.91
	4	π Aquarii. . . .	E.	57.2	59.8	1.5	7.6	9.7	11.7	17.9	19.4	21.9	19 9.63	+ 0.17	—23.63	—23.51	22 18 46.29	+ 0.14
	5	9 Draconis, S. P. .	E.	. .	. .	56.5	47.9	38.9	30.6	21.4	. .	. .	24 39.06	— 2.80	. .	—23.51	10 24 12.75	— 0.18
	6	226 Cephei	E.	. .	. .	5.5	13.5	22.0	30.3	38.3	. .	. .	30 21.92	+ 2.76	. .	—23.51	22 29 1.17	+ 0.08
	7	ζ Pegasi	E.	17.4	20.0	21.5	27.7	29.8	31.9	38.1	39.7	42.3	35 29.82	+ 0.16	—23.49	—23.51	22 35 6.47	+ 0.04
	8	τ^2 Aquarii. . . .	E.	1.8	4.5	6.0	12.3	14.4	16.6	23.0	24.5	27.2	43 14.48	— 0.15	. .	—23.51	22 42 50.82	— 2.04
	9	ι Cephei	E.	. .	. .	21.0	25.8	30.7	35.7	40.6	. .	. .	45 30.76	+ 1.60	. .	—23.51	22 45 8.89	+ 0.78
	10	χ Aquarii. . . .	E.	. .	. .	34.4	36.6	38.7	40.7	42.9	. .	. .	10 38.66	— 0.07	. .	—23.52	23 10 15.07	— 2.13
	11	ψ^2 Aquarii. . . .	E.	. .	. .	. .	38.7	40.7	42.8	44.9	. .	. .	11 40.73	— 0.09	. .	—23.52	23 11 17.12	— 2.15
	12	ψ^3 Aquarii. . . .	E.	31.3	34.0	35.5	41.9	44.0	46.0	52.2	53.8	56.5	12 43.91	— 0.09	. .	—23.52	23 12 20.30	— 2.16
	13	9 Piscium	E.	54.8	57.3	58.8	5.0	7.0	9.0	15.2	16.7	19.4	21 7.02	+ 0.04	. .	—23.52	23 20 43.54	— 2.13
	14	λ Draconis, S. P. .	E.	50.0	42.2	37.7	25.8	. .	. .	. .	. .	. .	24 13.90	— 1.85	. .	—23.52	11 23 48.53	+ 0.24
	15	Groombridge 4163	E.	. .	. .	46.8	54.4	1.8	9.6	16.3	. .	. .	49 1.78	+ 2.43	. .	—23.53	23 48 40.68	+ 0.29
	16	ω Piscium . . .	E.	57.7	0.3	1.8	8.0	10.0	12.0	18.3	19.8	22.4	53 10.03	+ 0.11	—23.48	—23.53	23 52 46.61	— 0.04
	17	29 Piscium . . .	E.	29.4	32.0	33.6	39.6	41.6	43.7	50.0	51.5	54.0	55 41.71	— 0.01	. .	—23.53	23 55 18.17	— 2.34
	18	α Andromedæ . .	E.	57.8	0.9	2.6	9.5	11.9	14.3	21.2	22.6	25.8	2 11.84	+ 0.42	—23.47	—23.53	0 1 48.73	— 0.04
	19	4 Draconis, S. P. .	E.	. .	. .	16.5	26.7	36.4	47.0	57.6	. .	. .	6 36.84	— 3.99	. .	—23.53	12 6 9.32	— 1.21
	20	10 Ceti.	E.	17.1	19.8	21.3	27.5	29.5	31.5	37.6	39.2	41.6	20 29.46	+ 0.03	. .	—23.54	0 20 5.95	— 2.45
	21	62 Piscium . . .	E.	52.5	55.3	56.8	3.0	5.0	7.0	13.3	14.8	17.4	42 5.01	+ 0.12	. .	—23.54	0 41 41.59	— 2.54
	22	32^1 Camelopard., S. P.	E.	18.8	2.8	48.7	9.2	49.6	28.9	. .	. .	. .	48 29.08	— 6.63	. .	—23.55	12 47 58.90	— 8.35
	23	32^2 Camelopard., S. P.	E.	25.7	10.7	57.0	16.6	57.0	36.8	. .	. .	. .	48 36.72	— 6.63	. .	—23.55	12 48 6.54	— 0.71
	24	ε Piscium . . .	E.	31.8	34.4	35.9	42.0	44.0	46.0	52.3	53.9	56.5	56 44.09	+ 0.12	—23.48	—23.55	0 56 20.66	— 0.05
	25	Polaris	E.	59.5	48.0	51.0	. .	35.5	59.0	24.0	. .	. .	11 33.98	+29.01	. .	—23.55	1 12 39.44	+ 0.97
	26	f Piscium . . .	E.	25.7	28.4	29.9	36.0	38.0	40.0	46.2	47.7	50.4	11 38.03	+ 0.07	. .	—23.55	1 11 14.55	— 2.68
	27	θ^1 Ceti. . . .	E.	51.7	54.2	55.7	1.8	3.9	6.0	12.1	13.8	16.2	18 3.93	— 0.08	—23.58	—23.55	1 17 40.30	+ 0.05
	28	η Piscium . . .	E.	51.7	54.3	55.9	2.3	4.4	6.6	12.7	14.5	17.0	25 4.38	+ 0.22	—23.62	—23.56	1 24 41.04	+ 0.13
	29	101 Piscium . . .	E.	. .	. .	17.8	19.9	22.0	24.1	26.2	. .	. .	29 22.00	+ 0.22	. .	—23.56	1 28 58.66	— 2.80
	30	Neptune . . .	E.	33.9	35.5	39.5	41.6	43.8	45.8	47.8	52.0	53.5	31 43.71	+ 0.13	. .	—23.56	1 31 20.28	. .
	31	o Piscium . . .	E.	52.0	54.7	56.3	2.5	4.5	6.5	12.6	14.4	16.8	39 4.48	+ 0.14	—23.59	—23.56	1 38 41.06	0.00
	32	δ Leonis	E.	29.7	32.5	34.0	40.6	42.9	45.0	51.7	53.2	55.9	7 42.83	+ 0.36	—23.66	—23.72	11 7 19.47	— 0.12
	33	δ Crateris . . .	E.	9.0	1.6	13.2	19.3	21.5	23.6	30.0	31.6	34.2	13 21.56	— 0.10	—23.58	—23.73	11 12 57.73	— 0.17
	34	v Leonis	E.	36.4	38.9	40.5	46.5	48.6	50.7	56.8	58.4	0.9	30 48.63	+ 0.08	—23.65	—23.73	11 30 24.98	— 0.12
	35	β Leonis	E.	43.9	46.5	48.0	54.4	56.5	58.7	4.9	6.5	9.0	42 56.49	+ 0.28	—23.69	—23.73	11 42 33.04	— 0.06
	36	o Virginis . . .	E.	. .	. .	. .	. .	. .	. .	14.3	15.8	18.4	59 5.99	+ 0.20	—23.66	—23.74	11 58 42.45	— 0.10
24	37	o Virginis . . .	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
26	38	Polaris	S.	. .	. .	. .	56.5	21.0	. .	14.5	0.5	. .	12 28.58	+31.49	. .	—24.09	1 12 35.98	— 0.76
	39	η Piscium . . .	S.	52.2	54.8	56.4	2.8	4.9	7.0	13.2	14.8	17.3	25 4.82	+ 0.24	—24.09	—24.09	1 24 40.97	+ 0.07
	40	π Piscium . . .	S.	33.2	35.7	37.2	43.5	45.6	47.7	54.0	55.5	58.0	30 45.60	+ 0.20	. .	—24.09	1 30 21.71	— 2.78
	41	v Piscium . . .	S.	0.8	3.4	4.9	11.0	13.0	15.0	21.3	22.9	25.3	35 13.07	+ 0.11	. .	—24.09	1 34 49.09	— 2.78
	42	β Arietis	S.	. .	. .	56.7	59.0	1.0	3.3	5.5	. .	. .	48 1.10	+ 0.33	—24.14	—24.09	1 47 37.34	+ 0.07
	43	50 Cassiopeæ . . .	S.	. .	. .	. .	. .	6.7	13.3	26.6	31.5	39.7	53 0.38	+ 2.35	. .	—24.09	1 52 38.64	+ 0.05
	44	μ Arietis	S.	23.2	25.9	27.5	33.9	36.0	38.3	44.8	46.4	49.0	35 36.11	+ 0.32	. .	—24.09	2 35 12.34	— 3.15
	45	40 Arietis	S.	35.9	38.4	40.0	46.5	48.7	50.8	57.4	58.9	1.5	41 48.68	+ 0.29	. .	—24.09	2 41 24.88	— 3.15
	46	σ Arietis	S.	40.0	42.6	44.2	50.5	52.6	54.8	1.0	2.7	5.4	44 52.64	+ 0.24	. .	—24.09	2 44 28.79	— 3.12
	47	65 Arietis	S.	17.3	20.0	21.8	28.4	30.5	32.8	39.2	40.9	43.6	17 30.50	+ 0.32	. .	—24.09	3 17 6.73	— 3.31
	48	9 Tauri	S.	40.6	43.3	45.0	51.5	53.7	56.0	2.5	4.3	7.0	29 53.77	+ 0.36	. .	—24.08	3 29 30.05	— 3.40
	49	13 Tauri	S.	10.5	13.0	14.8	21.2	23.3	25.4	31.9	33.5	36.4	35 23.33	+ 0.31	. .	—24.08	3 34 59.56	— 3.34

1, 10, 11, 29, 43. Bisections at sets B and D.
5, 6, 9, 15. Bisections at set C.
14. Bisections at wires II, III, and B_3.
22, 23. Bisections at wires B_1 and C_2.
25. Bisections at wires B_1, B_2, and B_3.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	75 14	7.2	4.3	2.8	26.2	34	670	. .	. .	. .	610	59.2	284 41 41.1	960	— 3 44.9	335 44 17.4	— 0.8
2	312 38	18.2	13.8	13.2	5.3	33	690	. .	. .	. .	700	59.2	47 17 36.7	. .	+ 1 5.0	98 25 2.9	+ 1.7
3	306 52	7.4	2.2	0.7	25.5	31	. .	450	. .	480	. .	59.2	53 2 51.3	. .	+ 1 19.7	104 10 32.2	+ 7.5
4	321 46	12.4	8.6	6.8	1.3	31	. .	430	. .	420	. .	59.2	38 8 56.6	. .	+ 47.2	89 16 5.0	+ 1.5
5	64 38	11.4	8.2	7.6	3.1	33	740	. .	. .	. .	770	59.2	295 17 32.6	. .	— 2 6.4	346 21 47.4	— 0.1
6	36 36	9.7	7.4	6.3	0.0	35	200	. .	. .	. .	220	59.2	323 19 53.3	. .	— 44.7	14 25 29.8	— 0.4
7	331 12	10.2	7.0	5.2	28.0	31	. .	780	. .	770	. .	59.2	28 42 59.8	. .	+ 32.9	79 49 53.9	+ 1.3
8	306 48	13.0	8.5	7.3	3.0	36	. .	410	. .	400	. .	59.2	53 8 13.6	. .	+ 1 20.0	104 15 54.8	+ 8.3
9	26 34	9.6	6.8	5.2	27.3	35	760	. .	. .	. .	810	59.2	333 22 1.0	. .	— 30.1	24 27 52.1	+ 0.1
10	312 38	10.5	6.0	4.3	0.0	34	980	. .	. .	. .	080	59.2	47 17 49.8	. .	+ 1 5.0	98 25 16.0	+11.0
11	311 10	9.7	4.0	2.7	27.5	32	. .	. .	680	. .	720	59.2	48 45 12.3	. .	+ 1 8.4	99 52 41.9	+10.4
12	310 44	12.6	8.5	5.3	0.8	31	. .	420	. .	390	. .	59.2	49 10 55.7	. .	+ 1 9.4	100 18 26.3	+10.3
13	321 28	14.0	8.1	8.3	2.6	33	. .	520	. .	500	. .	59.2	38 27 29.5	. .	+ 47.7	89 34 38.4	+14.0
14	70 56	7.2	5.3	2.8	27.3	29	. .	080	140	160	. .	59.2	288 58 16.9	. .	— 2 52.8	340 1 45.3	+ 0.4
15	34 44	5.5	3.3	1.2	25.0	35	830	. .	. .	. .	860	59.2	325 11 58.4	. .	— 41.7	16 17 37.9	+ 0.4
16	327 12	10.0	5.3	2.0	28.1	33	. .	630	. .	580	. .	59.2	32 43 26.6	. .	+ 38.5	83 50 26.3	+ 0.8
17	317 18	10.0	5.3	3.7	28.7	31	. .	450	. .	430	. .	59.2	42 36 53.9	. .	+ 55.2	93 44 10.3	+14.0
18	349 26	10.5	6.5	4.5	27.2	35	. .	910	. .	930	. .	59.2	10 30 3.2	. .	+ 11.1	61 36 35.5	+ 0.7
19	62 40	1.0	29.9	28.0	22.3	31	. .	340	. .	360	. .	59.2	297 14 44.4	. .	— 1 56.0	348 19 9.6	+ 0.1
20	320 18	12.0	8.8	7.6	2.6	35	. .	920	. .	880	. .	59.2	39 38 5.7	. .	+ 49.6	90 45 16.5	+15.4
21	327 40	3.2	0.7	29.0	21.0	38	. .	790	. .	730	. .	59.2	32 16 40.5	. .	+ 37.9	83 23 39.6	+17.6
22	56 54	11.5	10.0	7.7	1.0	33	870	880	. .	. .	. .	59.2	303 1 34.0	. .	— 1 32.0	354 6 23.3	+21.1
23	56 54	11.5	10.0	7.7	1.0	32	610	500	. .	. .	. .	59.2	303 1 13.8	. .	— 1 32.0	354 6 3.0	+ 0.6
24	328 14	16.3	13.5	11.3	4.1	30	. .	280	. .	240	. .	59.2	31 40 42.8	. .	+ 37.0	82 47 41.0	+ 0.9
25	49 38	8.6	6.5	5.0	28.3	30	570	705	760	. .	. .	59.2	310 16 44.8	. .	— 1 10.6	1 21 55.4	— 1.2
26	324 0	5.2	1.8	29.2	24.2	37	. .	090	. .	110	. .	59.2	35 56 16.6	. .	+ 43.4	87 3 21.2	+16.7
27	312 12	13.8	10.3	7.7	2.6	31	. .	590	. .	580	. .	59.2	47 43 0.3	. .	+ 1 5.8	98 50 27.3	+ 1.7
28	335 44	13.3	9.8	8.8	0.3	34	. .	640	. .	600	. .	59.2	24 11 46.5	. .	+ 26.9	75 18 34.6	+ 1.5
29	335 4	12.3	10.0	7.2	0.3	37	470	. .	. .	. .	420	59.2	24 52 29.2	. .	+ 27.8	75 59 18.2	+19.0
30	328 42	8.4	5.5	5.3	26.3	33	. .	460	. .	440	. .	59.2	31 13 24.3	. .	+ 36.3	82 20 21.8	
31	329 34	11.0	7.6	5.7	29.3	35	. .	710	. .	720	. .	59.2	30 22 1.1	. .	+ 35.1	81 28 57.4	+ 0.8
32	342 16	9.7	7.0	4.3	27.4	35	. .	970	. .	950	. .	59.0	17 40 3.5	. .	+ 19.0	68 46 43.7	— 1.0
33	306 58	14.2	9.8	7.8	3.5	33	. .	400	. .	440	. .	59.0	52 57 28.5	. .	+ 1 18.7	104 5 8.4	— 3.0
34	320 56	13.2	8.7	7.2	1.5	35	. .	330	. .	370	. .	59.0	38 59 57.0	. .	+ 48.1	90 7 6.3	— 2.1
35	336 20	2.5	0.0	27.6	20.0	36	. .	800	. .	780	. .	59.0	23 36 9.1	. .	+ 25.9	74 42 56.2	— 0.2
36	330 30	2.8	29.3	28.3	21.2	38	. .	540	. .	520	. .	59.0	29 26 36.2	. .	+ 33.5	80 33 30.9	— 0.7
37	330 30	6.6	4.0	1.8	27.2	38	. .	. .	. .	378	374	59.0	29 26 38.3	928	+ 33.3	80 33 32.8	+ 0.9
38																	
39	335 44	5.2	3.6	0.2	23.0	35	. .	087	. .	061	. .	59.0	24 11 45.6	. .	+ 27.0	75 18 33.8	+ 0.7
40	332 32	5.5	3.5	29.5	25.0	34	. .	650	. .	607	. .	59.0	27 23 39.2	. .	+ 31.2	78 30 31.6	+18.4
41	325 54	12.5	9.2	5.2	0.3	36	. .	. .	. .	960	. .	59.0	34 2 20.8	961	+ 40.6	85 9 22.6	+16.8
42	341 14	13.1	10.2	6.9	1.1	35	. .	. .	. .	907	877	59.0	18 42 5.6	. .	+ 20.4	69 48 47.2	+ 0.6
43	32 50	2.1	1.9	27.2	22.3	35	. .	. .	. .	617	603	59.0	327 5 51.8	962	— 38.9	18 11 34.1	— 0.9
44	340 30	7.5	4.6	0.5	25.4	32	. .	470	. .	430	. .	59.0	19 25 6.9	. .	+ 21.2	70 31 49.3	+17.9
45	338 48	. .	3.1	. .	23.5	36	. .	202	. .	200	. .	59.0	21 8 0.8	965	+ 23.3	72 14 45.3	+17.4
46	335 36	4.4	2.6	29.8	23.5	34	. .	922	. .	924	. .	59.0	24 19 42.9	. .	+ 27.2	75 26 31.3	+16.9
47	341 24	7.9	5.2	1.1	26.8	36	. .	. .	. .	572	600	59.0	18 32 11.2	. .	+ 20.2	69 38 52.6	+15.9
48	343 50	3.5	1.0	26.9	22.3	35	. .	960	. .	910	. .	59.0	16 5 56.8	972	+ 17.4	67 12 35.4	+15.3
49	340 20	4.0	0.7	27.0	21.9	35	. .	050	. .	062	. .	59.0	19 35 43.3	. .	+ 21.5	70 42 26.0	+15.0

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	. .	. .	38.0
26	30.185	40.0	
31	30.190	39.0	
33	30.215	32.5	
37	29.984	43.5	43.2
41	30.02	39.3	35.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
30	— 0.1	. .	. .	— 0.1

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Nov. 26	1	η Tauri	S.	6.7	9.4	11.0	17.6	19.9	22.2	28.8	30.5	33.4	40 19.94	+ 0.38	−24.17	−24.08	3 39 56.24	+ 0.09
	2	48 Tauri	S.	. .	. .	53.2	55.4	57.6	59.7	1.8	. .	. .	8 57.54	+ 0.25	. .	−24.08	4 8 33.71	− 3.33
	3	δ^1 Tauri	S.	50.4	51.9	56.3	58.4	0.5	2.6	4.7	9.1	10.6	16 0.50	+ 0.28	. .	−24.08	4 15 36.70	− 3.42
	4	θ^2 Tauri	S.	35.8	38.5	40.0	46.4	48.5	50.6	57.0	58.5	1.3	21 48.51	+ 0.26	. .	−24.08	4 21 24.69	− 3.35
	5	85 Tauri	S.	47.8	50.4	52.0	58.2	0.4	2.5	9.0	10.4	13.0	25 0.41	+ 0.26	. .	−24.08	4 24 36.59	− 3.36
	6	α Tauri	S.	49.0	51.7	53.4	59.6	1.8	4.0	10.4	12.0	14.6	29 1.83	+ 0.27	−24.09	−24.08	4 28 38.02	− 0.01
	7	Polaris, S. P.	S.	. .	. .	20.5	56.0	29.5	5.5	39.5	. .	. .	13 30.20	−35.04	. .	−24.06	1 12 31.10	− 5.39
	8	α Virginis	S.	39.8	42.3	43.9	50.2	52.2	54.2	0.4	1.9	4.6	18 52.17	− 0.24	−23.93	−24.06	13 18 27.87	− 0.15
	9	η Bootis	E.	47.0	49.6	51.4	57.7	0.0	2.1	8.6	10.0	12.8	48 59.91	+ 0.21	−24.07	−24.06	13 48 36.06	− 0.04
	10	α Bootis	E.	0.8	3.5	5.0	11.6	13.6	15.9	22.4	24.0	26.7	10 13.72	+ 0.22	−24.05	−24.06	14 9 49.88	− 0.01
	11	ε Bootis	E.	34.2	37.0	38.6	45.6	48.0	50.2	57.1	58.8	1.8	39 47.92	+ 0.36	−24.16	−24.06	14 39 24.22	+ 0.08
27	12	Sun I, N.	E.	41.2	44.3	45.8	52.4	54.6	56.9	3.5	5.0	7.9	15 54.62	− 0.41	. .	−24.06	16 15 30.15	. .
	13	Sun II, S.	E.	1.5	4.0	5.8	12.2	14.5	16.6	23.3	25.3	27.7	17 14.54	− 0.41	. .	−24.06	16 16 50.07	. .
	14	α Herculis	E.	. .	. .	. .	. .	. .	. .	21.3	22.8	25.5	9 12.82	+ 0.14	−24.02	−24.06	17 8 48.90	− 0.02
	15	α Ophiuchi	E.	11.2	13.8	15.5	21.8	24.0	26.0	32.3	33.8	36.6	29 23.89	+ 0.10	−24.09	−24.06	17 28 59.93	+ 0.06
	16	μ Herculis	E.	36.8	39.7	41.4	48.3	50.6	52.9	59.9	1.6	4.5	41 50.63	+ 0.36	−24.09	−24.06	17 41 26.93	+ 0.03
	17	β Aquarii	S.	2.5	5.0	6.6	12.8	14.9	17.0	23.0	24.6	27.2	25 14.84	. .	. .	. .	. . . .	. . .
	18	B. A. C. 7528	S.	15.3	18.0	19.6	26.2	. .	30.5	36.9	38.5	41.0	33 28.25	+ 0.17	. .	−23.95	21 33 4.47	− 1.20
	19	ψ^2 Aquarii	E.	28.7	31.3	32.9	39.3	41.4	43.5	49.7	51.3	54.0	11 41.34	− 0.25	. .	−24.06	23 11 17.03	− 2.11
	20	ψ^3 Aquarii	E.	. .	. .	40.3	42.4	44.5	46.6	48.7	. .	. .	12 44.50	− 0.26	. .	−24.06	23 12 20.18	− 2.11
	21	96 Aquarii	E.	. .	. .	7.8	9.8	12.0	14.2	16.2	. .	. .	13 12.00	− 0.20	. .	−24.06	23 12 47.74	− 2.10
	22	θ Piscium	E.	42.4	45.0	46.5	52.7	54.7	56.8	2.9	4.5	7.0	21 54.72	− 0.04	−24.08	−24.06	23 21 30.62	+ 0.08
	23	ω Piscium	E.	58.3	0.9	2.5	8.6	10.7	12.8	18.8	20.4	23.0	53 10.67	− 0.03	−24.02	−24.06	23 52 46.58	− 0.03
	24	30 Piscium	E.	38.0	40.5	42.0	48.2	50.3	52.4	58.5	0.0	2.5	55 50.27	− 0.21	. .	−24.06	23 55 26.00	− 2.32
	25	10 Ceti	E.	18.0	20.5	22.0	28.0	30.3	32.4	38.4	40.0	42.6	20 30.24	− 0.13	. .	−24.06	0 20 6.05	− 2.42
	26	B. A. C. 221	E.	54.7	57.3	58.9	4.9	7.0	9.0	15.0	16.8	19.4	42 7.00	− 0.05	. .	−24.06	0 41 42.89	− 2.52
	27	Polaris	E.	. .	. .	. .	. .	54.5	19.0	10.0	14.5	0.0	12 27.48	. .	. .	. .	. . . .	. . .
	28	η Piscium	E.	52.2	54.9	56.6	2.9	4.9	7.0	13.3	15.0	17.5	25 4.92	+ 0.10	−24.06	−24.06	1 24 40.96	+ 0.07
	29	101 Piscium	E.	10.0	12.8	14.4	20.6	22.7	24.7	31.0	32.7	35.3	29 22.69	+ 0.08	. .	−24.06	1 28 58.71	− 2.78
	30	Neptune	E.	14.0	16.4	22.0	24.3	26.4	28.4	30.5	36.0	38.8	31 26.31	− 0.01	. .	−24.06	1 31 2.24	. .
	31	θ Piscium	E.	52.8	55.2	56.9	3.0	5.0	7.0	13.3	14.9	17.4	39 5.06	0.00	−24.04	−24.06	1 38 41.00	− 0.05
28	32	Polaris	F.	40.0	44.0	. .	. .	. .	52.0	18.0	. .	. .	12 26.78	+34.33	. .	−24.33	1 12 36.78	+ 1.02
	33	f Piscium	F.	26.5	29.0	30.6	36.8	38.8	41.0	47.0	48.6	51.0	11 38.81	+ 0.18	. .	−24.33	1 11 14.66	− 2.65
	34	94 Piscium	F.	0.9	3.6	5.2	11.7	13.9	16.0	22.4	24.0	26.7	20 13.82	+ 0.41	. .	−24.33	1 19 49.90	− 2.75
	35	η Piscium	F.	52.3	55.0	56.5	2.9	5.0	7.0	13.4	15.0	17.7	25 4.98	+ 0.35	−24.37	−24.33	1 24 41.00	+ 0.11
	36	101 Piscium	F.	10.1	12.8	14.4	20.7	22.8	24.9	31.3	32.8	35.4	29 22.80	+ 0.34	. .	−24.33	1 28 58.81	− 2.77
	37	Neptune	F.	. .	. .	. .	. .	. .	. .	30.5	32.0	34.6	31 22.24	+ 0.25	. .	−24.34	1 30 58.15	. .
	38	ν Piscium	F.	. .	. .	. .	. .	. .	. .	21.6	23.0	25.6	35 13.32	+ 0.21	. .	−24.34	1 34 49.19	− 2.77
	39	β Arietis	F.	48.2	51.0	52.5	59.0	1.2	3.4	10.0	11.6	14.3	48 1.24	+ 0.43	−24.39	−24.34	1 47 37.33	+ 0.07
	40	α Arietis	F.	11.3	14.0	15.8	22.5	24.6	26.8	33.5	35.0	37.8	0 24.59	+ 0.48	−24.34	−24.35	2 0 0.72	0.00
	41	ξ Arietis	F.	12.2	14.7	16.3	22.5	24.5	26.6	33.0	34.4	37.0	18 24.58	+ 0.28	. .	−24.35	2 18 0.51	− 2.98
	42	ξ^2 Ceti	F.	36.0	38.7	40.2	46.4	48.5	50.5	56.7	58.2	0.8	21 48.44	+ 0.25	. .	−24.35	2 21 24.34	− 2.97
	43	B. A. C. 830	F.	50.3	52.8	54.5	0.7	2.8	4.8	11.0	12.4	15.1	36 2.71	+ 0.29	. .	−24.36	2 35 38.64	− 3.05
	44	38 Arietis	F.	13.9	16.6	18.0	24.3	26.4	28.5	34.8	36.3	38.8	38 26.40	+ 0.31	. .	−24.36	2 38 2.35	− 3.07
	45	ρ^3 Arietis	F.	27.0	29.9	31.3	37.8	40.0	42.0	48.5	50.0	52.8	49 39.92	+ 0.39	. .	−24.36	2 49 15.95	− 3.18
	46	47 Arietis	F.	. .	. .	. .	. .	. .	. .	21.7	23.0	26.0	51 12.87	+ 0.44	. .	−24.36	2 50 48.95	− 3.22
	47	ε Arietis	F.	7.9	10.6	12.3	18.8	20.9	23.0	29.6	31.3	34.0	52 20.93	+ 0.44	. .	−24.36	2 51 57.01	− 3.24
	48	53 Arietis	F.	27.9	30.4	32.0	38.5	40.6	42.9	49.0	50.9	53.5	0 40.63	+ 0.39	. .	−24.37	3 0 16.65	− 3.22
	49	B. A. C. 987	F.	34.9	37.6	39.3	45.4	47.5	49.5	55.9	57.4	0.1	4 47.51	+ 0.32	. .	−24.37	3 4 23.46	− 3.20
	50	τ Arietis	F.	4.6	7.3	8.8	15.5	17.7	19.9	26.4	28.0	30.7	14 17.66	+ 0.44	. .	−24.37	3 13 53.73	− 3.32

20. Bisections at wires II and III.
27. Bisections at wires C_4 and D_1.
30. Telescope micrometer reading increased one revolution in reduction.
45, 48. Bisections at sets B and D.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	344 44	6.5	2.5	29.3	23.6	30	. .	792	. .	834	. .	59.0	15 10 40.3	. .	+ 16.4	66 17 17.9	− 0.8
2	336 8	1.7	28.5	24.7	20.6	37	. .	380	. .	398	. .	59.0	23 48 17.1	. .	+ 26.7	74 55 5.0	+12.6
3	338 18	8.0	4.5	0.9	26.7	38	. .	318	. .	304	. .	59.0	21 38 37.4	. .	+ 24.0	72 45 22.6	+12.2
4	336 38	2.3	28.9	25.2	21.0	35	. .	890	. .	902	. .	59.0	23 17 54.6	986	+ 26.0	74 24 41.8	+11.8
5	336 38	2.3	28.9	25.2	21.0	38	. .	292	. .	278	. .	59.0	23 18 31.3	986	+ 26.1	74 25 18.6	+11.6
6	337 18	13.0	9.3	5.4	1.0	35	. .	730	. .	778	. .	59.0	22 38 2.8	. .	+ 25.2	73 44 49.2	+ 0.5
7	52 22	8.6	5.6	1.8	28.1	32	038	039	005	020	054	59.5	307 33 2.2	1016	− 1 19.4	358 8 4.0	− 0.4
8	310 34	11.8	7.4	3.4	0.9	36	. .	090	. .	108	. .	59.5	49 22 7.1	. .	+ 1 11.1	100 29 39.4	+ 1.1
9	340 4	7.8	5.0	3.6	26.3	32	. .	270	. .	210	. .	59.5	19 51 5.4	. .	+ 22.0	70 57 48.6	+ 1.1
10	340 54	10.5	7.8	4.8	29.0	37	. .	840	. .	830	. .	59.5	19 2 33.7	. .	+ 20.9	70 9 15.8	+ 2.0
11	348 40	4.2	2.5	29.5	23.5	39	. .	010	. .	990	. .	59.5	11 16 46.0	. .	+ 12.1	62 23 19.3	+ 1.3
12	300 2	11.2	7.0	3.8	29.3	33	182	090	. .	. .	. .	59.5	59 53 21.1	. .	+ 1 42.3	111 1 24.6	
13	299 30	8.6	5.0	2.8	28.8	35	. .	. .	. .	215	150	59.5	60 25 50.5	952	+ 1 44.5	111 33 56.2	
14	335 36	8.8	6.3	4.9	27.2	39	. .	. .	. .	440	460	59.5	24 21 57.2	. .	+ 27.0	75 27 45.4	+ 1.2
15	333 42	9.7	6.5	5.5	28.3	35	. .	290	. .	220	. .	59.5	26 13 53.4	. .	+ 29.4	77 20 44.0	+ 2.1
16	348 50	2.8	29.5	28.3	21.2	34	. .	740	. .	760	. .	59.5	11 5 38.9	. .	+ 11.7	62 12 11.8	+ 2.8
17	314 56	9.6	5.9	1.4	28.4	37	. .	613	. .	671	. .	60.1	45 0 29.4	954	+ 1 0.2	96 7 50.8	+ 1.1
18	340 44	12.5	9.5	6.6	0.5	34	. .	315	. .	329	. .	60.1	19 11 42.3	. .	+ 21.0	70 18 24.5	+16.8
19	311 10	5.6	1.1	29.2	25.4	32	. .	828	. .	810	. .	60.1	48 45 11.8	. .	+ 1 8.9	99 52 41.9	+10.5
20	310 44	9.5	4.5	1.9	28.8	31	490	550	. .	. .	. .	60.1	49 10 55.3	. .	+ 1 9.9	100 18 26.4	+10.4
21	315 14	5.4	1.8	29.1	25.7	35	. .	. .	. .	410	400	60.1	44 41 51.6	982	+ 59.8	95 49 12.6	+12.1
22	326 44	8.7	5.5	2.7	28.0	36	. .	360	. .	322	. .	60.1	33 12 9.4	. .	+ 39.6	84 19 10.2	+ 1.7
23	327 12	6.7	4.3	2.3	26.7	33	. .	700	. .	660	. .	60.1	32 43 27.3	. .	+ 38.9	83 50 27.4	+ 1.8
24	314 20	4.7	1.0	29.2	23.1	35	. .	770	. .	760	. .	60.1	45 35 56.3	. .	+ 1 1.8	96 43 19.3	+12.8
25	320 18	10.4	7.8	4.7	29.7	35	. .	960	. .	970	. .	60.1	39 38 5.5	. .	+ 50.1	90 45 16.8	+15.1
26	325 40	2.6	1.3	28.0	22.8	33	. .	630	. .	610	. .	60.1	34 15 22.6	. .	+ 41.2	85 22 25.0	+16.9
27	49 38	7.5	6.2	4.2	27.2	30	. .	. .	. .	850	730	60.1	310 16 45.0	. .	− 1 11.5	1 21 54.7	− 0.8
28	335 44	11.5	9.0	7.2	29.8	34	. .	560	. .	540	. .	60.1	24 11 45.1	. .	+ 27.2	75 18 33.5	+ 0.4
29	335 4	5.5	4.1	1.5	23.6	37	. .	810	. .	790	. .	60.1	24 52 29.3	. .	+ 28.1	75 59 18.6	+19.1
30	328 42	5.0	2.6	29.6	23.9	38	. .	880	. .	840	. .	60.1	31 15 0.1	. .	+ 36.8	82 21 58.1	
31	329 34	9.5	6.3	4.4	27.5	35	. .	680	. .	650	. .	60.1	30 21 59.7	. .	+ 35.6	81 28 56.5	− 0.3
32	49 38	2.1	29.8	28.4	22.1	31	. .	. .	. .	154	154	60.4	310 16 44.7	. .	− 1 11.3	1 21 54.6	− 0.7
33	324 0	4.3	1.5	28.0	24.6	37	. .	070	. .	046	. .	60.4	35 56 16.7	. .	+ 43.8	87 3 21.7	+16.4
34	339 38	2.0	28.6	25.4	20.5	37	. .	568	. .	570	. .	60.4	20 18 21.6	1000	+ 22.4	71 25 5.2	+20.3
35	335 44	7.8	4.4	2.2	25.5	34	. .	896	. .	900	. .	60.4	24 11 46.4	. .	+ 27.2	75 18 34.8	+ 1.7
36	335 4	4.6	2.5	29.5	23.9	37	. .	896	. .	900	. .	60.4	24 52 30.2	. .	+ 28.0	75 59 19.4	+19.0
37	328 42	8.6	4.7	2.5	27.9	41	. .	. .	. .	158	154	60.4	31 15 23.4	. .	+ 36.7	82 22 21.3	
38	325 54	6.2	3.1	29.4	25.9	37	. .	. .	. .	262	270	60.4	34 2 21.4	996	+ 40.8	85 9 23.4	+16.7
39	341 14	10.1	7.3	3.4	28.4	36	. .	040	. .	040	. .	60.4	18 42 6.3	. .	+ 20.4	69 48 47.9	+ 1.4
40	343 54	0.7	28.8	25.0	19.2	34	. .	806	. .	812	. .	60.4	16 1 38.5	. .	+ 17.4	67 8 17.1	− 0.8
41	331 4	5.4	1.6	28.3	24.2	32	. .	142	. .	138	. .	60.4	28 51 1.4	. .	+ 33.3	79 57 55.9	+17.0
42	328 56	3.1	29.0	26.5	22.3	34	. .	822	. .	820	. .	60.4	30 59 40.4	996	+ 36.3	82 6 37.9	+16.5
43	331 14	7.3	3.6	1.0	25.8	32	. .	490	. .	500	. .	60.4	28 41 8.9	. .	+ 33.1	79 48 3.2	+16.5
44	332 58	1.6	28.2	26.2	21.3	38	. .	. .	. .	214	216	60.4	26 58 31.7	. .	+ 30.8	78 5 23.7	+16.7
45	338 34	6.6	3.3	0.2	25.2	37	068	. .	. .	. .	080	60.4	21 22 18.6	. .	+ 23.7	72 29 3.5	+17.3
46	341 12	13.9	10.4	6.6	1.1	34	. .	. .	. .	598	. .	60.4	18 43 47.3	. .	+ 20.5	69 50 29.0	+17.4
47	341 52	5.6	3.2	28.9	24.0	33	. .	. .	. .	638	632	60.4	18 3 25.0	. .	+ 19.7	69 10 5.9	+17.4
48	338 26	7.9	5.3	1.5	26.3	35	470	. .	. .	. .	474	60.4	21 29 55.4	. .	+ 23.8	72 36 40.4	+16.5
49	333 36	4.0	1.3	27.5	22.9	33	. .	. .	. .	026	020	60.4	26 19 14.0	. .	+ 29.9	77 26 5.1	+15.8
50	341 44	4.3	0.8	27.5	22.8	36	. .	086	. .	070	. .	60.4	18 13 1.0	. .	+ 19.9	69 19 42.1	+16.2

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
7	30.13	33.3	29.2
13	30.16	41.0	42.5
15	30.15	43.0	
21	30.20	40.5	35.0
31	30.25	35.5	
34	29.93	36.0	30.5
38	. .	. .	30.8
50	. .	. .	30.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
12	− 7.8	+ 16 15.8	. .	+ 16 8.0
13	− 7.8	− 16 15.8	. .	− 16 23.6
30	− 0.1	. .	. .	− 0.1
37	− 0.2	. .	. .	− 0.2

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSITS OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Nov. 28	1	τ^2 Arietis	F.	. .	. .	. .	. .	. .	. .	59.3	1.0	3.8	15 50.65	+ 0.44	. .	−24.37	3 15 26.72	− 3.32
	2	65 Arietis	F.	17.7	20.3	22.0	28.6	30.8	32.9	39.4	41.0	43.7	17 30.71	+ 0.44	. .	−24.37	3 17 6.78	− 3.32
	3	g Pleiadum	F.	. .	. .	34.8	37.0	39.3	41.5	43.7	. .	. .	37 39.26	+ 0.50	. .	−24.38	3 37 15.38	− 3.45
	4	c Pleiadum	F.	. .	. .	38.0	40.0	42.3	44.7	49.0	50.7	53.5	38 40.10	+ 0.50	. .	−24 38	3 38 16.22	− 3.46
	5	f Pleiadum	F.	. .	. .	. .	0.6	2.8	5.0	9.5	11.0	14.0	42 0.56	+ 0.49	. .	−24.38	3 41 36.67	− 3.48
	6	γ^1 Eridani	F.	18.3	21.0	22.6	28.8	31.0	33.0	39.4	41.0	43.6	52 30.97	− 0.05	−24.36	−24.38	3 52 6.54	+ 0.02
	7	ω^2 Tauri	F.	2.9	4.5	8.8	10.9	13.0	15.3	17.5	21.9	23.4	10 13.13	+ 0.44	. .	−24.39	4 9 49.18	− 3.45
	8	γ Tauri	F.	45.3	48.0	49.6	55.9	58.0	0.1	6.5	8.0	10.7	12 58.01	+ 0.36	−24.34	−24.39	4 12 33.98	− 0.04
	9	Anonymous	F.	38.5	41.4	42.9	49.3	51.5	53.6	0.0	1.5	4.2	15 51.43	+ 0.38	. .	−24.39	4 15 27.42	− 3.39
Dec. 2	10	Sun I, N.	F.	17.8	20.6	22.2	. .	. .	. .	39.8	41.5	44.2	36 31.02	− 0.30	. .	−26.85	16 36 3.87	. .
	11	Sun II, S.	F.	38.7	41.5	43.0	49.8	51.9	54.0	0.8	2.3	5.2	38 51.91	− 0.30	. .	−26.85	16 38 24.76	. .
	12	μ Herculis	F.	39.5	42.6	44.2	51.0	53.4	55.7	2.7	4.4	7.3	41 53.42	+ 0.34	−26.86	−26.87	17 41 26.89	− 0.01
	13	Venus I, N.	F.	11.9	14.6	16.3	23.3	25.4	27.8	34.3	36.0	39.0	11 25.40	− 0.34	−26.89	−26.89	19 10 58.17	+ 0.38
	14	Venus, S.	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	15	B. A. C. 830	F.	53.0	55.7	57.2	3.4	5.5	7.6	13.9	15.4	18.0	36 5.52	+ 0.10	. .	−27.01	2 35 38.61	− 3.05
	16	μ Ceti	F.	19.0	21.8	23.3	29.4	31.5	33.6	39.8	41.5	44.0	38 31.54	+ 0.11	. .	−27.01	2 38 4.64	− 3.06
	17	40 Arietis	F.	39.0	41.6	43.2	49.6	51.7	53.8	0.4	2.0	4.5	41 51.76	+ 0.19	. .	−27.01	2 41 24.94	− 3.17
	18	47 Arietis	F.	2.9	5.6	7.2	13.7	15.9	18.0	24.6	26.2	29.0	51 15.90	+ 0.23	. .	−27.01	2 50 49.12	− 3.24
	19	ε Arietis	F.	10.8	13.6	15.0	21.8	23.9	26.0	32.5	34.3	37.0	52 23.88	+ 0.23	. .	−27.01	2 51 57.10	− 3.25
	20	δ Arietis	F.	35.9	38.7	40.3	46.8	49.0	51.1	57.6	59.3	1.0	4 48.96	+ 0.21	. .	−27.01	3 4 22.16	− 3.28
	21	ζ Arietis	F.	49.8	52.6	54.3	0.8	3.0	5.1	11.7	13.3	15.9	8 2.94	+ 0.23	−27.07	−27.02	3 7 36.15	+ 0.01
	22	m Pleiadum	F.	. .	. .	57.6	59.7	1.8	4.2	6.6	. .	. .	38 1.98	+ 0.29	. .	−27.02	3 37 35.25	− 3.50
	23	d Pleiadum	F.	0.8	3.7	5.3	12.0	14.0	16.4	23.0	24.6	27.6	39 14.16	+ 0.27	. .	−27.02	3 38 47.41	− 3.48
	24	26 Tauri	F.	37.6	40.6	42.2	49.0	51.0	53.3	0.0	1.7	4.5	41 51.10	+ 0.27	. .	−27.02	3 41 24.35	− 3.49
	25	γ^1 Eridani	F.	21.0	23.8	25.4	31.7	33.8	36.0	42.3	43.8	45.5	52 33.81	− 0.19	−27.03	−27.03	3 52 6.59	+ 0.04
	26	58 Tauri	F.	38.5	41.0	42.6	49.0	51.1	53.2	59.6	1.2	3.8	13 51.11	+ 0.16	. .	−27.03	4 13 24.24	− 3.40
	27	δ^1 Tauri	F.	. .	. .	59.4	1.5	3.7	5.6	7.9	. .	. .	16 3.62	+ 0.19	. .	−27.03	4 15 36.78	− 3.45
	28	κ^1 Tauri	F.	1.7	4.5	6.2	12.7	15.0	17.0	23.7	25.4	28.2	18 14.93	+ 0.25	. .	−27.03	4 17 48.15	− 3.55
	29	71 Tauri	F.	. .	. .	. .	. .	. .	. .	42.0	43.6	46.3	19 33.55	+ 0.17	. .	−27.03	4 19 6.69	− 3.42
	30	75 Tauri	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	31	80 Tauri	F.	8.5	11.0	12.7	18.9	21.0	23.2	29.6	31.2	33.9	23 21.11	+ 0.17	. .	−27.03	4 22 54.25	− 3.42
	32	81 Tauri	F.	38.5	41.0	42.5	49.0	51.2	53.4	59.6	1.2	3.9	23 51.14	+ 0.17	. .	−27.03	4 23 24.28	− 3.42
	33	τ Tauri	F.	51.0	53.8	55.4	2.0	4.3	6.5	13.0	14.7	17.5	35 4.24	+ 0.26	. .	−27.04	4 34 37.46	− 3.60
	34	i Tauri	F.	10.7	13.4	15.0	21.4	23.6	25.7	32.1	33.8	36.4	44 23.57	+ 0.21	. .	−27.04	4 43 56.74	− 3.51
	35	ι Aurigæ	F.	55.6	58.6	0.4	7.7	10.2	13.6	19.8	21.8	24.7	49 10.16	+ 0.41	−27.08	−27.04	4 48 43.53	0.00
	36	k Tauri	F.	36.4	39.2	40.9	47.7	50.0	52.3	59.0	0.7	3.3	50 49.94	+ 0.29	. .	−27.04	4 50 23.19	− 3.67
	37	ι Tauri	F.	44.0	46.8	48.5	54.9	57.2	59.4	6.0	7.6	10.3	55 57.19	+ 0.24	. .	−27.04	4 55 30.39	− 3.59
	38	m Tauri	F.	. .	. .	19.3	21.4	23.5	25.7	27.9	. .	. .	0 23.56	+ 0.21	. .	−27.04	4 59 56.73	− 3.52
	39	l Tauri	F.	. .	. .	. .	. .	. .	48.7	53.0	54.7	57.4	0 44.33	+ 0.23	. .	−27.04	5 0 17.52	− 3.56
	40	β Orionis	F.	41.2	43.6	45.2	51.4	53.5	55.6	1.7	3.3	5.8	8 53.48	− 0.12	−27.03	−27.05	5 8 26.31	− 0.02
	41	n Tauri	F.	52.4	55.0	56.7	3.4	5.6	7.8	14.4	16.0	18.8	12 5.57	+ 0.25	. .	−27.05	5 11 38.77	− 3.61
	42	119 Tauri	F.	0.0	2.8	4.3	10.8	12.9	15.0	21.4	23.0	25.8	25 12.89	+ 0.21	. .	−27.05	5 24 46.05	− 3.52
	43	120 Tauri	F.	19.0	21.8	23.4	29.8	31.9	34.0	40.5	42.0	44.8	26 31.91	+ 0.21	. .	−27.05	5 26 5.07	− 3.52
	44	121 Tauri	F.	55.0	58.0	59.7	6.2	8.6	10.8	17.5	19.2	22.0	28 8.56	+ 0.28	. .	−27.05	5 27 41.79	− 3.66
	45	130 Tauri	F.	15.9	18.6	20.2	26.6	28.7	30.9	37.3	38.9	41.7	40 28.76	+ 0.20	. .	−27.05	5 40 1.91	− 3.49
	46	132 Tauri	F.	26.6	19.5	31.0	37.9	40.1	42.4	49.0	50.7	53.6	41 40.09	+ 0.29	. .	−27.05	5 41 13.33	− 3.66
	47	χ^2 Orionis	E.	39.3	42.0	43.8	50.1	52.5	54.6	1.0	2.7	5.5	47 52.39	+ 0.22	. .	−27.06	5 47 25.55	− 3.54
	48	139 Tauri	F.	22.6	24.5	29.0	31.2	33.5	35.8	38.0	42.7	44.4	50 33.52	+ 0.30	. .	−27.06	5 50 6.76	− 3.70
	49	141 Tauri	F.	. .	. .	23.9	26.0	28.2	30.5	32.6	. .	. .	54 28.24	+ 0.26	. .	−27.06	5 54 1.44	− 3.60
	50	1 Geminorum	F.	37.4	40.2	41.8	48.6	50.8	53.0	59.7	1.4	4.2	56 50.79	+ 0.27	. .	−27.06	5 56 24.00	− 3.62

9, 19, 20. Bisections at sets B and D.
22. Bisections at wires II and III.
23, 48. Bisections at wires V and VI.
29. Bisections at wires III and VI.
42. Wire A used.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	341 20	0.3	27.2	23.7	18.8	36	. .	. .	. .	756	760	60.4	18 36 7.6	. .	+ 20.4	69 42 49.2	+16.0
2	341 24	6.5	3.2	29.2	24.5	36	. .	650	. .	646	. .	60.4	18 32 11.7	. .	+ 20.3	69 38 53.2	+16.0
3	344 56	3.2	0.2	26.0	22.5	36	160	170	. .	. .	. .	60.4	15 0 1.6	. .	+ 16.2	66 6 39.0	+15.0
4	345 0	2.5	29.0	24.5	19.9	32	. .	. .	. .	956	960	60.4	14 55 10.7	. .	+ 16.1	66 1 48.0	+14.9
5																	
6	307 10	13.5	9.5	6.8	2.9	29	. .	994	. .	990	. .	60.4	52 44 36.7	. .	+ 1 19.3	103 52 17.2	+ 2.6
7	341 18	12.5	9.0	4.4	0.1	32	. .	. .	. .	220	230	60.4	18 37 24.8	. .	+ 20.4	69 43 6.4	+12.6
8	336 22	4.5	1.3	27.2	22.0	36	. .	110	. .	110	. .	60.4	23 34 1.3	. .	+ 26.3	74 40 48.8	+ 1.1
9	337 32	6.7	4.4	1.3	25.7	34	. .	810	. .	806	. .	60.4	22 23 44.5	990	+ 24.9	73 30 30.6	+12.2
10	299 14	19.3	20.0	17.5	11.3	30	846	852	. .	. .	. .	59.0	60 41 27.4	858	+ 1 42.4	111 49 31.0	
11	298 42	14.7	15.7	12.4	5.7	33	. .	. .	. .	086	144	59.0	61 13 56.7	. .	+ 1 44.6	112 22 2.5	
12	348 50	0.4	28.0	27.5	20.8	34	. .	. .	. .	948	950	59.0	11 5 40.1	. .	+ 11.3	62 12 12.6	+ 2.3
13	296 40	2.6	27.7	28.6	20.2	36	883	. .	. .	. .	879	59.0	63 16 9.8	. .	+ 1 54.5	114 24 25.5	
14	296 40	2.6	27.7	28.6	20.2	37	. .	704	. .	712	. .	59.0	63 16 22.7	. .	+ 1 54.6	114 24 38.5	
15	331 14	11.6	7.0	6.5	27.4	32	. .	716	. .	716	. .	58.5	28 41 13.9	. .	+ 32.1	79 48 7.5	+16.4
16	330 38	10.4	6.5	5.4	28.4	37	. .	592	. .	580	. .	58.5	29 18 28.5	. .	+ 33.2	80 25 22.9	+16.2
17	338 48	14.5	10.7	9.2	0.3	35	. .	692	. .	690	. .	58.5	21 8 2.9	. .	+ 22.7	72 14 46.8	+16.8
18	341 12	14.3	9.9	7.8	1.1	34	. .	846	. .	844	. .	58.5	18 43 49.5	. .	+ 19.9	69 50 30.6	+17.4
19	341 52	10.6	6.2	3.5	28.6	33	. .	518	. .	516	. .	58.5	18 3 25.5	. .	+ 19.1	69 10 5.8	+17.5
20	340 18	11.9	6.9	6.0	1.2	38	. .	010	. .	000	. .	58.5	19 38 36.2	. .	+ 20.9	70 45 18.3	+16.4
21	341 36	13.5	10.4	7.2	2.3	31	. .	364	. .	364	. .	58.5	18 18 56.2	. .	+ 19.4	69 25 36.8	+ 0.6
22	345 28	9.5	7.2	5.0	28.3	31	. .	868	770	. .	. .	58.5	14 27 59.8	. .	+ 15.2	65 34 36.2	+15.2
23	344 36	7.5	4.7	2.1	27.5	.	. .	. .	948	950	. .	58.5	15 20 16.5	. .	+ 16.1	66 26 53.8	+15.0
24	344 32	9.4	6.0	3.2	26.1	40	. .	924	. .	930	. .	58.5	15 25 18.4	. .	+ 16.2	66 31 55.8	+14.8
25	307 10	11.1	6.1	5.1	29.6	30	. .	378	. .	382	. .	58.5	52 44 38.0	. .	+ 1 17.2	13 52 16.4	+ 1.0
26	335 50	8.3	4.8	4.5	26.2	35	070	074	. .	. .	. .	58.5	24 5 48.3	. .	+ 26.4	75 12 35.9	+12.2
27	338 18	10 22.0	18.0	15.3	6.1	37	560	556	. .	. .	. .	58.5	21 38 38.4	. .	+ 23.4	72 45 23.0	+12.2
28	343 2	12.8	10.6	7.5	0.2	32	. .	474	. .	480	. .	58.5	16 53 12.7	. .	+ 17.9	67 59 51.8	+12.2
29	336 22	7.7	3.9	3.1	26.1	33	. .	. .	960	960	. .	58.5	23 33 30.2	. .	+ 25.7	74 40 17.1	+11.9
30	337 8	13.5	9.0	7.4	28.9	38	. .	. .	. .	535	. .	58.5	22 48 45.1	. .	+ 24.8	73 55 31.1	+11.8
31	336 26	13.4	8.8	7.8	29.9	42	070	076	. .	. .	. .	58.5	23 31 39.9	. .	+ 25.7	74 38 26.8	+11.6
32	336 26	13.4	8.8	7.8	29.9	39	. .	. .	. .	114	110	58.5	23 28 20.1	. .	+ 25.6	74 35 6.9	+11.6
33	343 46	12.6	8.3	6.7	29.5	38	. .	072	. .	036	. .	58.5	16 10 37.4	. .	+ 17.1	67 17 15.7	+10.9
34	339 40	5.9	1.7	29.8	23.0	35	. .	720	. .	730	. .	58.5	20 15 54.9	. .	+ 21.8	71 22 37.9	+10.2
35	354 0	7.1	2.2	0.8	24.4	34	900	892	. .	. .	. .	58.5	5 55 43.4	. .	+ 6.1	57 2 10.7	0.0
36	345 54	5.2	1.2	28.5	22.7	36	. .	900	. .	906	. .	58.5	14 2 12.3	. .	+ 14.8	65 8 48.3	+ 9.7
37	342 28	18.2	14.4	10.9	2.2	38	. .	774	. .	784	. .	58.5	17 28 53.4	. .	+ 18.6	68 35 33.2	+ 9.3
38	339 32	10.4	6.1	4.2	27.9	39	126	128	. .	. .	. .	58.5	20 24 51.8	. .	+ 22.0	71 31 35.0	+ 9.1
39	341 18	15.5	11.2	8.6	2.0	36	. .	. .	. .	776	766	58.5	18 38 20.2	. .	+ 20.0	69 45 1.4	+ 9.0
40	312 42	11.0	6.5	4.5	0.0	33	. .	. .	. .	856	854	58.5	47 13 31.3	. .	+ 1 4.0	98 20 56.5	+ 0.8
41																	
42	339 30	6.5	1.8	29.5	25.0	34	. .	740	. .	744	. .	58.5	20 23 21.1	. .	+ 22.0	71 30 4.3	+ 7.2
43	339 30	6.5	1.8	29.5	25.0	37	420	424	. .	. .	. .	58.5	20 26 21.6	. .	+ 22.1	71 33 4.9	+ 7.1
44	345 0	6.3	1.5	0.0	24.2	36	. .	780	. .	780	. .	58.5	14 56 11.5	. .	+ 15.8	66 2 48.5	+ 6.6
45	338 44	12.1	8.3	5.8	28.5	37	290	300	. .	. .	. .	58.5	21 12 25.2	. .	+ 23.0	72 19 9.4	+ 6.0
46	345 34	6.5	3.4	1.7	25.8	35	. .	870	. .	878	. .	58.5	14 21 58.9	. .	+ 15.2	65 28 35.3	+ 5.3
47	340 26	10.6	6.6	4.3	26.7	35	. .	216	. .	212	. .	58.5	19 9 51.5	. .	+ 20.7	70 16 33.4	+ 5.3
48	346 58	10.2	6.0	3.8	27.7	32	. .	. .	642	646	. .	58.5	12 57 11.8	. .	+ 13.7	64 3 46.7	+ 4.4
49	343 26	13.5	9.2	6.7	28.7	33	. .	. .	. .	910	916	58.5	16 29 34.0	. .	+ 17.6	67 36 12.8	+ 4.5
50	344 18	10.2	6.2	4.3	27.2	32	. .	. .	. .	760	746	58.5	15 37 13.6	. .	+ 16.6	66 43 51.4	+ 3.8

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
1	. .	. .	30.0
9	29.86	36.0	30.6
10	29.78	47.5	51.6
17	29.83	47.0	44.2
21	. .	. .	44.1

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
10	— 7.8	+ 16 15.7	. .	+ 16 7.9
11	— 7.9	— 16 15.7	. .	— 16 23.6
13	— 6.3	+ 6.6	. .	+ 0.3
14	— 6.3	— 6.6	+ 0.2	— 12.7

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Dec. 2	1	68 Orionis. . . .	F.	43.8	46.5	48.0	54.6	56.8	59.0	5.5	7.0	9.9	4 56.79	+ 0.22	. .	−27.06	6 4 29.95	− 3.52
	2	η Geminorum . .	F.	29.0	30.5	35.0	37.2	39.5	41.6	43.8	48.4	50.0	7 39.44	+ 0.26	. .	−27.06	6 7 12.64	− 3.58
	3	δ Ursæ Minoris, S.P.	F.	. .	. .	50.5	16.0	40.5	7.0	31.5	. .	. .	13 41.10	−10.64	. .	−27.06	18 13 3.40	− 0.72
	4	γ Geminorum . .	F.	36.4	39.0	40.7	47.0	49.2	51.3	57.8	59.4	2.0	30 49.20	+ 0.18	−26.97	−27.07	6 30 22.31	− 0.13
	5	ε Geminorum . .	F.	20.2	23.0	24.8	31.4	33.8	36.0	42.8	44.4	47.2	36 33.73	+ 0.30	. .	−27.07	6 36 6.96	− 3.60
	6	51 Cephei	F.	. .	. .	15.5	58.0	41.5	24.0	7.0	. .	. .	40 41.20	+13.04	. .	−27.07	6 40 27.17	− 0.74
3	7	α Coronæ Borealis .	S.	. .	. .	38.6	40.9	43.3	45.5	47.7	. .	. .	29 43.20	+ 0.26	−27.11	−27.19	15 29 16.27	− 0.08
	8	α Serpentis . . .	S.	13.0	15.7	17.3	23.4	25.4	27.5	33.7	35.2	37.9	38 25.46	+ 0.06	−27.13	−27.19	15 37 58.33	− 0.04
4	9	Sun I, N. . . .	S.	0.3	3.0	4.6	11.3	13.4	15.6	22.2	24.0	26.7	45 13.46	− 0.34	. .	−27.19	16 44 45.93	. .
	10	Sun II, N. . . .	S.	21.3	24.0	25.6	32.3	34.6	36.9	43.6	45.0	47.8	47 34.57	− 0.34	. .	−27.19	16 47 7.04	. .
	11	Mercury, C. . .	S.	56.9	59.6	1.2	7.9	10.0	12.2	19.0	10.9	13.6	11 10.14	− 0.38	. .	−27.20	18 10 42.56	+ 0.06
	12	Moon I. . . .	S.	56.4	59.2	1.0	8.0	10.3	12.3	19.4	21.0	24.0	48 10.18	− 0.26	. .	−27.21	20 47 42.71	+74.07
	13	μ Arietis	S.	26.3	29.0	30.6	37.0	39.1	41.4	47.9	49.4	52.0	35 39.19	+ 0.39	. .	−27.24	2 35 12.34	− 3.15
	14	μ Ceti.	S.	19.2	21.7	23.3	29.5	. .	33.8	39.8	41.4	44.0	38 31.59	+ 0.24	. .	−27.24	2 38 4.59	− 3.06
	15	ρ^3 Arietis	S.	30.2	32.9	34.5	40.9	43.0	45.0	51.6	53.0	55.9	49 43.00	+ 0.35	. .	−27.24	2 49 16.11	− 3.19
	16	ε^1 Arietis	S.	10.8	13.5	15.2	21.7	23.9	26.0	32.8	34.4	37.0	52 23.92	+ 0.41	. .	−27.24	2 51 57.09	− 3.25
	17	53 Arietis	S.	30.9	33.6	35.0	41.6	43.7	45.8	52.3	53.8	56.5	0 43.69	+ 0.36	. .	−27.24	3 0 16.81	− 3.27
	18	B. A. C. 987 . .	S.	37.9	40.6	42.0	48.4	50.4	52.6	59.0	0.5	3.0	4 50.49	+ 0.28	. .	−27.24	3 4 23.53	− 3.19
	19	ζ Arietis	S.	50.0	52.8	54.3	0.8	3.0	5.3	11.8	13.3	16.0	8 3.03	+ 0.41	−27.33	−27.24	3 7 36.20	+ 0.05
	20	65 Arietis	S.	20.6	23.4	25.0	31.6	33.7	35.8	42.5	44.0	46.8	17 33.71	+ 0.41	. .	−27.24	3 17 6.87	− 3.35
	21	l Pleiadum . . .	S.	33.5	36.3	38.0	44.7	47.0	49.2	55.8	57.6	0.3	37 46.93	+ 0.46	. .	−27.24	3 37 20.15	− 3.49
	22	η Tauri	S.	9.5	12.4	14.2	20.9	23.0	25.3	31.9	33.6	36.5	40 23.03	+ 0.46	−27.29	−27.24	3 39 56.25	+ 0.05
	23	h Tauri	S.	54.2	55.9	0.4	2.6	4.9	7.0	9.3	13.8	15.4	42 4.83	+ 0.46	. .	−27.24	3 41 38.05	− 3.49
	24	58 Tauri	S.	38.8	41.3	43.0	49.0	51.3	53.3	59.8	1.4	4.0	13 51.32	+ 0.32	. .	−27.24	4 13 24.40	− 3.42
	25	ν^2 Tauri	S.	55.4	58.0	59.8	6.3	8.7	11.0	17.6	19.3	22.0	20 8.68	+ 0.45	. .	−27.25	4 19 41.88	− 3.59
	26	θ^2 Tauri	S.	. .	. .	47.5	49.6	51.7	53.8	56.0	. .	. .	21 51.72	+ 0.33	. .	−27.25	4 21 24.80	− 3.45
	27	85 Tauri	S.	50.9	53.5	55.0	1.5	3.6	5.7	12.0	13.7	16.3	25 3.58	+ 0.33	. .	−27.25	4 24 36.66	− 3.48
	28	a Tauri	S.	52.3	55.0	56.5	2.9	5.0	7.0	13.5	14.9	17.9	29 5.00	+ 0.34	−27.22	−27.25	4 28 38.09	− 0.05
	29	τ Tauri	S.	51.0	53.8	55.5	2.0	4.3	6.4	13.0	14.9	17.6	35 4.28	+ 0.45	. .	−27.25	4 34 37.48	− 3.62
	30	κ Tauri	S.	36.5	39.4	41.0	47.7	50.0	52.2	59.0	0.7	3.5	50 50.00	+ 0.46	. .	−27.25	4 50 23.21	− 3.67
	31	ι Tauri	S.	44.0	46.8	48.4	55.0	57.1	59.4	5.9	7.7	10.3	55 57.18	+ 0.42	. .	−27.25	4 55 30.35	− 3.61
	32	ε Ursæ Minoris, S.P.	S.	0.1	41.2	29.6	0.1	. .	. .	. .	. .	. .	59 29.40	− 6.21	. .	−27.25	4 58 55.94	− 0.64
5	33	10 Ceti.	E.	21.0	23.5	25.1	31.3	33.3	35.4	41.4	43.0	45.5	20 33.28	+ 0.07	. .	−27.39	0 20 5.96	− 2.34
	34	B. A. C. 221 . .	E.	57.7	0.4	1.9	8.0	10.0	12.0	18.2	19.7	22.4	42 10.03	+ 0.13	. .	−27.39	0 41 42.87	− 2.45
	35	ε Piscium . . .	E.	35.6	38.0	39.7	45.9	48.0	50.0	56.2	57.7	0.4	56 47.94	+ 0.16	−27.45	−27.40	0 56 20.70	+ 0.07
	36	f Piscium . . .	E.	29.8	32.4	33.9	39.9	42.0	44.0	50.0	51.6	54.2	11 42.00	+ 0.11	. .	−27.40	1 11 14.71	− 2.61
	37	Polaris	E.	56.0	41.0	47.0	. .	. .	55.0	20.0	. .	. .	12 29.08	. .	. .	. .	. . . .	. .
	38	η Piscium . . .	E.	55.4	58.0	59.7	6.0	8.1	10.3	16.6	18.2	20.9	25 8.13	+ 0.26	−27.47	−27.40	1 24 40.99	+ 0.14
	39	π Piscium . . .	E.	. .	. .	44.7	46.8	48.9	51.0	53.0	. .	. .	30 48.88	+ 0.22	. .	−27.40	1 30 21.70	− 2.74
	40	o Piscium . . .	E.	55.7	58.4	0.0	6.4	8.1	10.3	16.4	18.0	20.5	39 8.20	+ 0.18	−27.40	−27.40	1 38 40.98	− 0.03
	41	ξ^2 Ceti.	E.	39.0	41.8	43.4	49.5	51.6	53.6	59.7	1.3	4.0	21 51.54	+ 0.17	. .	−27.41	2 21 24.30	− 2.97
	42	B. A. C. 830 . .	E.	53.4	56.2	57.7	3.8	5.9	8.0	14.0	15.6	18.3	36 5.88	+ 0.20	. .	−27.41	2 35 38.67	− 3.05
	43	38 Arietis	E.	17.0	19.6	21.2	27.3	29.5	31.6	38.0	39.6	42.3	38 29.57	+ 0.22	. .	−27.41	2 38 2.38	− 3.08
	44	40 Arietis	E.	39.0	41.8	43.4	49.9	52.0	54.4	0.4	2.2	4.9	41 52.00	+ 0.30	. .	−27.41	2 41 24.89	− 3.16
	45	47 Arietis	E.	3.0	5.9	7.4	14.0	16.3	18.4	24.9	26.4	29.0	51 16.14	+ 0.33	. .	−27.42	2 50 49.05	− 3.24
	46	δ Arietis	E.	36.2	38.9	40.5	47.0	49.2	51.4	57.8	59.5	2.0	4 49.17	+ 0.32	. .	−27.42	3 4 22.07	− 3.28
	47	g Pleiadum . . .	E.	. .	. .	38.0	40.0	42.2	44.7	46.8	. .	. .	37 42.34	+ 0.38	. .	−27.42	3 37 15.30	− 3.50
	48	e Pleiadum . . .	E.	. .	. .	. .	. .	. .	10.4	14.8	16.6	19.5	38 5.96	+ 0.39	. .	−27.42	3 37 38.93	− 3.51
	49	f Pleiadum . . .	E.	50.3	53.2	55.0	1.5	3.8	6.0	12.7	14.4	17.0	42 3.77	+ 0.38	. .	−27.42	3 41 36.73	− 3.51

32, 37. Bisections at sets B and D.
33. Telescope micrometer reading increased one revolution in reduction.
35. Telescope micrometer reading decreased five revolutions in reduction.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1																	
2	343 36	11.8	7.3	4.0	28.0	38	. .	868	. .	864	. .	58.5	16 20 48.3	. .	+ 17.5	67 27 27.0	+ 3.1
3	54 24	5.8	4.0	3.5	26.2	33	942	938	942	940	940	58.5	305 31 29.5	. .	— 1 23.3	356 36 27.4	— 0.6
4	337 32	3.4	29.7	28.3	21.6	31	. .	524	. .	542	. .	58.5	22 22 48.6	. .	+ 24.5	73 29 34.3	— 0.4
5	346 18	11.5	7.1	3.5	27.7	35	. .	956	. .	964	. .	58.5	13 38 3.4	. .	+ 14.5	64 44 39.1	+ 0.4
6	48 16	7.8	4.0	3.8	27.3	38	258	254	248	260	254	58.5	311 40 36.8	. .	— 1 6.9	2 45 51.0	— 1.4
7	348 12	18.2	16.6	10.5	7.3	36	. .	. .	. .	390	372	60.0	11 44 49.5	. .	+ 12.5	62 51 23.2	+ 1.0
8	327 52	10.4	7.6	2.9	0.0	33	178	194	. .	148	152	60.0	32 3 22.1	. .	+ 37.6	83 10 20.9	+ 1.2
9	298 58	27.5	26.5	22.5	16.8	34	592	566	. .	. .	. .	60.0	60 57 31.9	. .	+ 1 47.5	112 5 40.6	
10	298 26	26.3	24.8	20.5	17.4	36	. .	. .	. .	668	756	60.0	61 30 3.1	. .	+ 1 50.0	112 38 14.3	
11																	
12																	
13	340 30	4.6	2.1	27.8	22.6	32	. .	. .	472	. .	. .	59.2	19 25 4.6	. .	+ 21.8	70 31 47.6	+18.1
14	330 38	9.8	7.0	3.5	27.4	37	. .	. .	. .	478	466	59.2	29 18 26.6	. .	+ 34.8	80 25 22.6	+16.1
15	338 34	9.9	7.8	4.6	28.9	36	. .	690	. .	700	. .	59.2	21 22 15.6	. .	+ 24.3	72 29 1.1	+17.1
16	341 52	11.8	9.3	6.2	29.2	33	. .	. .	. .	168	154	59.2	18 3 22.7	. .	+ 20.2	69 10 4.1	+17.6
17	338 26	11.7	9.2	5.7	29.8	35	. .	152	. .	106	. .	59.2	21 29 52.9	. .	+ 24.4	72 36 38.5	+16.9
18	333 36	11.8	9.3	6.0	0.6	32	. .	417	. .	399	. .	59.2	26 19 11.4	. .	+ 30.7	77 26 3.3	+15.6
19	341 36	11.4	8.9	4.9	29.6	31	. .	319	. .	359	. .	59.2	18 18 54.3	. .	+ 20.5	69 25 36.0	— 0.1
20	341 24	9.7	7.2	3.6	27.6	36	. .	347	. .	305	. .	59.2	18 32 9.2	. .	+ 20.8	69 38 51.2	+16.1
21	344 46	12.1	9.7	5.5	29.6	37	. .	745	. .	787	. .	59.2	15 10 33.6	. .	+ 16.8	66 17 11.6	+15 2
22	344 46	12.1	9.7	5.5	29.6	38	. .	107	. .	181	. .	59.2	15 10 39.4	. .	+ 16.9	66 17 17.5	— 0.9
23	344 46	12.1	9.7	5.5	29.6	29	. .	. .	. .	620	700	59.2	15 8 29.2	. .	+ 16.8	66 15 7.2	+15.8
24	335 50	8.1	4.8	2.7	25.6	35	. .	098	. .	005	. .	59.2	24 5 47.9	. .	+ 27.8	75 12 36.9	+12.2
25	343 46	10.1	7.9	4.7	28.3	38	860	890	. .	. .	. .	59.2	16 10 49.3	. .	+ 18.0	67 17 28.5	+12.1
26	336 38	8.5	4.7	1.5	25.7	35	. .	. .	. .	445	531	59.2	23 17 54.4	. .	+ 26.8	74 24 42.4	+11.7
27	336 38	8.5	4.7	1.5	25.7	37	. .	848	. .	836	. .	59.2	23 18 30.6	. .	+ 26.8	74 25 18.6	+11.5
28	337 18	6.4	3.4	29.6	24.6	36	. .	150	. .	088	. .	59.2	22 38 2.4	. .	+ 25.9	73 44 49.5	+ 0.7
29	343 46	8.2	6.6	3.1	27.1	38	. .	106	. .	122	. .	59.2	16 10 35.9	. .	+ 18.0	67 17 15.1	+11.0
30	345 54	11.2	9.0	5.0	29.7	36	. .	378	. .	398	. .	59.2	15 2 11.9	. .	+ 16.7	66 8 49.8	+ 9.7
31	342 28	5.5	2.8	28.4	22.5	39	. .	480	. .	430	. .	59.2	17 28 52.6	. .	+ 19.6	68 35 33.4	+ 9.3
32	58 46	11.6	9.9	6.9	2.5	35	082	032	. .	. .	. .	59.2	301 9 52.4	. .	— 1 42.6	352 14 31.0	— 1.0
33	320 18	6.5	4.5	2.0	25.7	35	. .	030	. .	020	. .	61.9	39 38 4.8	. .	+ 51.0	90 45 17.0	+14.6
34	325 40	7.0	4.2	2.0	25.9	33	. .	230	. .	220	. .	61.9	34 15 21.9	. .	+ 42.0	85 22 25.1	+16.5
35	328 14	8.1	4.8	2.9	27.0	35	. .	550	. .	570	. .	61.9	31 40 42.0	. .	+ 38.0	82 47 41.2	+ 0.6
36	324 0	0.9	28.7	26.1	20.7	37	. .	040	. .	070	. .	61.9	35 56 15.1	. .	+ 44.7	87 3 21.0	+16.0
37	49 38	4.0	3.2	1.7	24.7	30	610	650	. .	. .	. .	61.9	310 16 43.2	. .	— 1 12.6	1 21 51.8	— 1.4
38	335 44	3.1	0.3	28.8	21.3	35	. .	030	. .	020	. .	61.9	24 11 45.7	. .	+ 27.7	85 18 34.6	+ 1.5
39	332 32	1.7	28.8	26.2	21.0	34	640	680	. .	. .	. .	61.9	27 23 38.8	. .	+ 32.0	78 30 32.0	+18.2
40	329 34	6.0	3.0	1.2	25.1	35	. .	740	. .	780	. .	61.9	30 21 59.9	. .	+ 36.1	81 28 57.2	+ 0.2
41	328 56	7.3	4.0	2.2	26.2	34	. .	360	. .	340	. .	61.9	30 59 39.2	. .	+ 37.1	82 6 37.5	+16.3
42	331 14	5.0	2.7	1.0	23.7	32	. .	390	. .	400	. .	61.9	28 41 7.5	. .	+ 33.8	79 48 2.5	+16.3
43	332 58	7.8	4.6	2.5	27.5	37		630	. .	600	. .	61.9	26 58 30.2	. .	+ 31.4	78 5 22.8	+16.6
44	338 48	5.8	4.0	1.5	24.7	35		790	. .	810	. .	61.9	21 8 0.8	. .	+ 23.9	72 14 45.9	+17.5
45	341 12	3.5	1.3	28.2	22.0	35	. .	090	. .	070	. .	61.9	18 42 47.0	. .	+ 20.9	69 49 29.1	+17.5
46	340 18	6.6	4.8	1.0	25.7	37	. .	950	. .	920	. .	61.9	19 38 34.1	. .	+ 22.1	70 45 17.4	+16.7
47	344 56	7.8	5.0	3.6	26.0	.	720	730	. .	. .	. .	61.9	15 0 1.4	. .	+ 16.6	66 6 39.2	+15.3
48	345 6	5.6	3.2	1.2	24.0	33	. .	. .	. .	060	020	61.9	14 49 17.9	. .	+ 16.3	65 55 55.4	+15.3
49	344 42	0.1	28.0	25.0	17.7	34	. .	230	. .	240	. .	61.9	15 13 30.5	. .	+ 16.8	66 20 8.5	+15.0

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
3	. .	. .	37.5
6	29.90	42.0	37.3
7	. .	. .	39.3
8	30.26	39.8	39.3
10	30.235	40.6	40.1
13	30.25	29.5	24.6
15	30.24	29.5	24.2
17	. .	. .	24.1
20	. .	. .	23.5
23	. .	. .	23.2
24	. .	. .	23.0
29	30.23	27.5	22.6
34	30.16	32.0	25.5

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	° ′ ″
9	— 7.8	+ 16 16.8	. .	+ 16 9.0
10	— 7.9	— 16 16.8	. .	— 16 24.7

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Dec. 5	1	γ^1 Eridani. . . .	E.	21.6	24.0	25.7	32.0	34.1	36.1	42.4	44.0	46.8	52 34.08	− 0.09	−27.39	−27.43	3 52 6.56	0.00
	2	58 Tauri	E.	38.8	41.5	42.9	49.3	51.4	53.4	59.9	1.5	4.0	13 51.41	+ 0.26	. .	−27.43	4 13 24.24	− 3.42
	3	δ^2 Tauri	E.	. .	. .	9.4	11.5	13.6	15.9	18.0	. .	. .	17 13.68	+ 0.29	. .	−27.43	4 16 46.54	− 3.48
	4	κ^2 Tauri	E.	. .	. .	14.0	16.2	18.3	20.5	22.8	. .	. .	18 18.36	+ 0.35	. .	−27.43	4 17 51.28	− 3.58
	5	B. A. C. 1391 . .	E.	31.9	34.8	36.5	42.6	44.7	46.8	53.0	54.7	57.4	23 44.71	+ 0.27	. .	−27.43	4 23 17.55	− 3.46
	6	B. A. C. 1394 . .	E.	45.3	47.7	49.6	55.7	57.9	0.1	6.4	8.0	10.6	23 57.92	+ 0.27	. .	−27.43	4 23 30.76	− 3.46
	7	α Tauri	E.	52.5	55.2	. .	. .	. .	. .	. .	. .	. .	29 5.28	+ 0.28	−27.43	−27.43	4 28 38.13	− 0.02
	8	99 Tauri	E.	20.2	22.9	24.7	31.2	33.4	35.5	42.4	44.0	47.0	50 33.48	+ 0.38	. .	−27.44	4 50 6.42	− 3.68
	9	ι Tauri	E.	44.2	47.0	48.7	55.2	57.4	59.5	6.2	7.9	10.6	55 57.41	+ 0.34	. .	−27.44	4 55 30.31	− 3.63
	10	m Tauri	E.	. .	. .	19.7	21.7	23.8	26.0	28.0	. .	. .	0 23.84	+ 0.31	. .	−27.44	4 59 56.71	− 3.56
	11	105 Tauri	E.	. .	. .	. .	. .	49.2	51.4	55.8	57.5	0.3	0 47.03	+ 0.35	. .	−27.44	5 0 19.94	− 3.64
	12	β Orionis. . . .	E.	41.5	44.0	45.5	51.7	53.7	55.7	2.0	3.6	6.3	8 53.78	− 0.02	−27.39	−27.44	5 8 26.32	− 0.05
	13	n Tauri	E.	52.7	55.5	57.0	3.6	5.9	8.1	14.7	16.5	19.0	12 5.89	+ 0.35	. .	−27.44	5 11 38.80	− 3.65
	14	111 Tauri	E.	15.2	17.8	19.5	25.8	28.0	30.0	36.5	38.0	41.0	17 27.98	+ 0.29	. .	−27.44	5 17 0.83	− 3.54
	15	115 Tauri	E.	59.6	2.6	4.3	10.5	12.8	14.9	21.5	23.0	25.6	20 12.76	+ 0.30	. .	−27.44	5 19 45.62	− 3.56
	16	117 Tauri	E.	. .	. .	2.0	4.3	6.5	8.7	10.8	. .	. .	21 6.46	+ 0.29	. .	−27.44	5 20 39.31	− 3.54
	17	119 Tauri	E.	. .	. .	8.7	10.7	13.0	15.3	17.4	. .	. .	25 13.02	+ 0.31	. .	−27.44	5 24 45.89	− 3.57
	18	120 Tauri	E.	19.4	22.0	23.6	30.0	32.3	34.4	40.9	42.4	44.9	26 32.21	+ 0.31	. .	−27.44	5 26 5.08	− 3.57
	19	ε Orionis. . . .	E.	1.4	3.9	5.5	11.6	13.7	15.8	21.9	23.4	26.0	30 13.69	+ 0.06	−27.40	−27.44	5 29 46.31	− 0.05
	20	α Coronæ Borealis .	F.	29.8	32.6	34.2	41.0	43.2	45.5	52.5	54.2	57.0	29 43.33	+ 0.42	−27.36	−27.46	15 29 16.29	− 0.10
	21	α Serpentis . . .	F.	13.3	15.8	17.3	23.4	25.6	27.7	33.9	35.3	38.0	38 25.59	+ 0.23	−27.43	−27.47	15 37 58.35	− 0.06
6	22	Sun I, S. . . .	F.	44.3	47.0	48.8	. .	. .	. .	6.8	8.4	10.8	53 57.68	− 0.04	. .	−27.48	16 53 30.16	. .
	23	Sun II, N. . . .	F.	5.8	8.5	10.1	16.7	19.0	21.3	27.8	29.5	32.4	56 19.01	− 0.04	. .	−27.48	16 55 51.49	. .
	24	δ Ursæ Minoris. .	F.	. .	. .	14.0	50.5	22.0	56.5	32.0	. .	. .	13 23.00	. .	. .	. .	. . . .	. .
	25	α Lyræ	F.	47.0	50.4	52.4	0.1	2.8	5.5	13.5	15.5	18.6	33 2.87	+ 0.55	−27.51	−27.49	18 32 35.93	+ 0.04
	26	β Lyræ	F.	33.5	36.3	38.4	45.7	48.1	50.6	57.8	59.7	2.7	45 48.09	+ 0.48	−27.45	−27.49	18 45 21.08	− 0.02
	27	ζ Aquilæ. . . .	F.	46.7	49.3	50.9	57.2	59.2	1.5	7.6	9.2	11.9	59 59.28	+ 0.29	−27.49	−27.49	18 59 32.08	+ 0.08
	28	Venus I, N. . .	F.	26.5	29.2	30.9	37.7	40.0	42.0	48.9	50.5	53.5	32 39.91	− 0.05	. .	−27.50	19 32 12.36	+ 0.50
	29	α Aquilæ. . . .	F.	47.9	50.4	52.0	58.2	0.3	2.4	8.6	10.0	12.7	45 0.28	+ 0.24	−27.49	−27.50	19 44 33.02	+ 0.03
	30	η Aquarii. . . .	S.	3.7	6.1	7.6	13.7	15.8	17.9	24.0	25.5	28.0	29 15.81	+ 0.18	−27.58	−27.60	22 28 48.39	+ 0.01
	31	ζ Pegasi	S.	21.3	23.8	25.4	31.5	33.6	35.7	41.9	43.5	46.0	35 33.63	+ 0.28	−27.58	−27.60	22 35 6.31	+ 0.04
	32	τ^2 Aquarii. . . .	S.	5.6	8.3	10.0	16.2	18.4	20.5	26.9	28.4	31.0	43 18.37	+ 0.07	. .	−27.60	22 42 50.84	− 1.85
	33	Moon I, S. . . .	S.	49.6	52.2	53.8	0.4	2.5	4.5	21.0	22.6	25.4	47 2.44	+ 0.06	. .	−27.60	22 46 34.90	+68.89
	34	α Piscis Australis .	S.	. .	. .	. .	4.3	6.8	9.0	13.9	15.6	18.6	51 4.36	− 0 11	−27.72	−27.60	22 50 36.65	+ 0.16
	35	α Pegasi	S.	39.4	42.0	43.7	50.0	52.0	54.2	0.6	2.2	4.9	58 52.11	+ 0.32	−27.51	−27.60	22 58 24.83	− 0.06
	36	26 Tauri	F.	50.6	53.4	55.0	1.6	3.9	6.0	12.9	14.5	17.3	42 3.91	+ 0.50	. .	−27.57	3 41 36.84	− 3.52
	37	δ^2 Tauri	F.	1.0	3.8	5.1	11.7	13.9	15.9	22.4	23.9	26.6	17 13.81	+ 0.43	. .	−27.58	4 16 46.66	− 3.49
	38	δ^3 Tauri	F.	25.6	27.2	31.5	33.7	35.8	37.9	40.0	44.4	46.0	18 35.79	+ 0.43	. .	−27.58	4 18 8.64	− 3.50
	39	θ^1 Tauri	F.	33.9	36.6	38.0	44.5	46.6	48.7	55.0	56.8	59.4	21 46.61	+ 0.42	. .	−27.58	4 21 19.45	− 3.47
	40	80 Tauri	F.	8.8	11.5	13.0	19.3	21.4	23.6	30.0	31.6	34.3	23 21.50	+ 0.41	. .	−27.58	4 22 54.33	− 3.46
	41	81 Tauri	F.	38.9	41.6	43.2	49.6	51.7	53.9	0.1	1.8	4.4	23 51.69	+ 0.41	. .	−27.58	4 23 24.52	− 3.46
	42	ι Aurigæ. . . .	F.	55.9	59.0	0.8	8.2	10.7	13.0	20.2	22.0	25.0	49 10.53	+ 0.61	−27.62	−27.58	4 48 43.56	− 0.02
	43	k Tauri	F.	36.8	39.6	41.3	48.0	50.3	52.6	59.2	1.0	3.8	50 50.29	+ 0.51	. .	−27.58	4 50 23.22	− 3.72
	44	m Tauri	F.	. .	. .	19.6	21.6	23.9	26.0	28.3	. .	. .	0 23.88	+ 0.44	. .	−27.58	4 59 56.74	− 3.58
	45	n Tauri	F.	52.8	55.5	57.2	3.8	5.9	8.3	14.9	16.4	19.0	12 5.98	+ 0.48	. .	−27.58	5 11 38.88	− 3.67
	46	111 Tauri	F.	15.2	17.8	19.5	25.9	28.0	30.0	36.8	38.2	40.9	17 28.03	+ 0.43	. .	−27.58	5 17 0.88	− 3.56
	47	115 Tauri	F.	. .	. .	8.6	10.8	13.0	15.0	17.2	. .	. .	20 12.92	+ 0.44	. .	−27.59	5 19 45.77	− 3.57
	48	119 Tauri	F.	0.3	2.9	4.7	11.0	13.4	15.4	22.0	23.6	26.2	25 13.28	+ 0.44	. .	−27.59	5 24 46.13	− 3.59
	49	120 Tauri	F.	. .	. .	27.9	30.3	32.4	34.5	36.7	. .	. .	26 32.36	+ 0.44	. .	−27.59	5 26 5.21	− 3.59
	50	121 Tauri	F.	55.4	58.4	59.9	6.7	8.9	11.2	17.7	19.7	22.3	28 8.91	+ 0.50	. .	−27.59	5 27 41.82	− 3.73

17, 41, 48. Wire A used.
18. Telescope micrometer reading increased ten revolutions in reduction.
47. Bisections at sets B and D.
49, 50. Bisections at wires V and VI.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	
1	307 10	6.1	2.5	0.3	25.1	30	. .	250	. .	280	. .	61.9	52 44 35.2	. .	+ 1 21.2	103 52 17.6	+ 1.7
2	335 50	1.8	0.1	28.3	19.8	35	. .	130	. .	120	. .	61.9	24 5 46.4	. .	+ 27.2	75 12 35.3	+12.2
3	338 12	4.0	3.3	0.1	23.3	37	040	020	. .	. .	. .	61.9	21 44 18.5	. .	+ 24.7	72 51 4.4	+12.1
4	342 58	9.3	7.0	3.0	27.0	38	850	850	. .	. .	. .	61.9	16 58 50.4	. .	+ 18.9	68 5 30.5	+12.3
5	336 56	6.3	2.8	1.7	23.2	28	870	900	. .	. .	. .	61.9	22 58 14.4	. .	+ 26.2	74 5 1.8	+11.6
6	336 56	6.3	2.8	1.7	23.2	39	. .	. .	. .	230	220	61.9	23 0 52.9	. .	+ 26.3	74 7 40.4	+11.6
7	337 18	7.8	5.2	3.0	27.5	35	. .	840	. .	800	. .	61.9	22 38 2.7	. .	+ 25.8	73 44 49.7	+ 0.9
8	344 48	5.8	4.2	2.0	25.0	37	. .	520	. .	540	. .	61.9	15 8 27.7	. .	+ 16.6	66 15 5.5	+ 9.8
9	342 28	8.2	5.8	3.0	26.7	39	. .	035	. .	025	. .	61.9	17 28 52.4	. .	+ 19.3	68 35 32.9	+ 9.3
10	339 32	3.8	2.0	29.8	21.8	39	280	250	. .	. .	. .	61.9	20 24 52.0	. .	+ 22.8	71 31 36.0	+ 9.0
11	342 36	7.0	4.0	1.2	25.6	40	. .	. .	. .	320	330	61.9	17 21 10.8	. .	+ 19.1	68 27 51.1	+ 9.0
12	312 42	6.0	2.7	0.9	26.3	33	. .	740	. .	720	. .	61.9	47 13 28.8	. .	+ 1 6.0	98 20 56.0	− 0.2
13	343 0	0.5	29.0	26.8	18.0	34	. .	200	. .	180	. .	61.9	16 55 30.6	. .	+ 18.6	68 2 10.4	+ 8.0
14	338 18	9.8	6.5	4.0	28.0	33	. .	100	. .	090	. .	61.9	21 37 22.3	. .	+ 24.2	72 44 7.7	+ 7.7
15	338 54	6.1	3.1	0.8	24.0	36	. .	240	. .	260	. .	61.9	21 2 7.2	. .	+ 23.4	72 8 51.8	+ 7.5
16	338 10	4.8	1.0	28.3	22.2	33	. .	140	. .	160	. .	61.9	21 45 17.6	. .	+ 24.3	72 52 3.1	+ 7.5
17	339 30	28.5	25.0	23.2	17.5	35	. .	900	. .	900	. .	61.9	20 23 19.7	. .	+ 22.6	71 30 4.5	+ 7.1
18	339 30	28.5	25.0	23.2	17.5	27	. .	630	. .	650	. .	61.9	20 26 21.1	. .	+ 22.6	71 33 4.9	+ 6.9
19	319 46	8.2	3.9	1.8	26.7	34	. .	860	. .	840	. .	61.9	40 9 47.2	. .	+ 51.2	91 16 59.6	− 1.2
20	348 12	8.1	4.3	1.2	26.9	38	964	966	. .	968	972	61.0	11 44 49.8	. .	+ 12.4	62 51 23.4	+ 0.6
21	327 52	1.2	24.5	21.5	18.3	33	. .	. .	. .	908	900	61.0	32 3 23.0	. .	+ 37.2	83 10 21.4	+ 1.3
22	298 12	7.6	3.2	29.4	26.1	38	296	304	. .	. .	. .	61.0	61 44 38.1	. .	+ 1 50.4	112 52 49.7	
23	298 44	6.3	2.0	29.3	24.7	36	. .	. .	. .	550	542	61.0	61 12 10.0	. .	+ 1 48.0	112 20 19.2	
24																	
25	359 42	7.5	4.0	4.5	27.9	34	. .	466	. .	470	. .	53.8	0 13 34.3	. .	+ 0.2	51 19 55.7	− 2.4
26	354 16	10.8	8.7	8.3	1.4	37	896	904	. .	908	906	53.8	5 40 31.0	. .	+ 5.9	56 49 58.1	− 0.8
27	334 44	6.7	2.7	4.5	28.0	38	. .	496	. .	504	. .	53.8	25 12 35.6	. .	+ 27.8	76 19 24.6	− 0.7
28	297 18	11.5	6.8	6.8	2.1	38	. .	660	. .	574	. .	53.8	62 38 41.0	. .	+ 1 54.2	113 46 56.4	+ 0.6
29	329 34	11.2	7.3	7.1	1.7	32	. .	024	. .	028	. .	53.8	30 20 59.9	. .	+ 34.8	81 27 55.9	− 1.9
30	320 16	10.3	5.5	5.1	27.5	32	. .	640	. .	653	. .	60.0	39 39 13.5	. .	+ 49.7	90 46 24.4	+ 1.3
31	331 12	8.0	4.7	3.1	24.8	31	. .	947	. .	980	. .	60.0	28 43 1.1	. .	+ 32.8	79 49 55.1	+ 1.8
32																	
33	. .	6.4	2.1	29.8	24.2	37	580	371	225	973	777	60.0	53 16 19.1	. .	+ 1 20.2	104 24 0.5	
34																	
35	335 34	9.0	4.8	4.0	26.2	35	. .	273	. .	335	. .	60.0	24 21 53.3	. .	+ 27.2	75 28 41.7	+ 2.1
36	344 42	18.5	14.7	12.2	6.2	35	. .	136	. .	128	. .	60.0	15 13 30.1	. .	+ 16.6	66 20 7.9	+14.8
37	338 12	8.4	5.2	1.8	27.2	37	024	028	. .	. .	. .	60.0	21 44 19.5	. .	+ 24.3	72 51 5.0	+12.1
38	338 40	2.6	29.8	28.3	21.5	32	. .	388	. .	396	. .	60.0	21 15 3.1	. .	+ 23.7	72 21 48.0	+12.0
39	336 44	7.8	5.3	2.0	25.3	37	. .	598	. .	602	. .	60.0	23 12 27.6	. .	+ 26.1	74 19 14.9	+11.7
40	336 26	6.7	3.9	1.5	25.2	42	. .	. .	. .	214	222	60.0	23 31 37.8	. .	+ 26.5	74 38 25.5	+11.6
41	336 26	6.7	3.9	1.5	25.2	39	. .	. .	. .	320	300	60.0	23 28 18.6	. .	+ 26.4	74 35 6.2	+11.6
42	354 0	0.6	27.3	24.8	19.9	35	. .	094	. .	090	. .	60.0	5 55 42.3	. .	+ 6.3	57 2 9.8	− 1.5
43	345 54	0.7	26.7	23.0	18.4	37	. .	044	. .	054	. .	60.0	14 2 11.4	. .	+ 15.2	65 8 47.8	+ 9.8
44	339 32	7.3	2.9	0.5	25.1	39	. .	. .	236	. .	. .	60.0	20 24 51.6	. .	+ 22.7	71 31 35.5	+ 9.0
45	343 0	0.5	27.2	23.6	18.8	34	. .	262	. .	266	. .	60.0	16 55 28.8	. .	+ 18.6	68 2 8.6	+ 8.0
46	338 18	10.5	6.5	2.5	28.4	33	. .	204	. .	208	. .	60.0	21 37 22.0	. .	+ 24.2	72 44 7.4	+ 7.7
47	338 54	6.1	2.1	0.3	23.3	36	. .	382	. .	394	. .	60.0	21 2 6.8	. .	+ 23.5	72 8 51.5	+ 7.5
48	339 30	0.2	26.2	23.3	17.5	35	. .	982	. .	980	. .	60.0	20 23 19.8	. .	+ 22.7	71 30 3.7	+ 7.1
49	339 30	0.2	26.2	23.3	17.5	37	. .	690	. .	690	. .	60.0	20 26 20.7	. .	+ 22.8	71 33 4.7	+ 7.0
50	345 0	7.8	3.0	0.8	23.6	36	. .	372	. .	378	. .	60.0	14 56 7.5	. .	+ 16.3	66 2 45.0	+ 6.6

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
7	30.18	30.0	24.0
19	30.27	34.5	35.2
23	30.24	43.0	43.2
25	30.25	63.0	46.0
27	30.23	48.0	47.3
29	30.22	46.0	44.4
30	30.24	43.0	40.2
35	30.25	43.0	40.5
36	30.28	38.0	34.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
22	— 7.9	— 16 15.2	. .	— 16 23.1
23	— 7.8	+ 16 15.2	. .	+ 16 7.6
28	— 6.3	+ 6.9	. .	+ 0.6
33	−47 17.1	— 16 8.2	. .	−1 3 21.4

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Dec. 6	1	125 Tauri	F.	5.6	8.3	9.9	16.8	19.0	21.3	28.0	29.9	32.7	32 19.06	+ 0.52	. .	−27.59	5 31 51.99	− 3.78
	2	132 Tauri	F.	. .	. .	36.0	38.2	40.5	42.7	45.0	. .	. .	41 40.48	+ 0.51	. .	−27.59	5 41 13.40	− 3.77
	3	χ^2 Orionis	F.	39.7	42.4	44.0	50.7	52.8	55.0	1.6	3.2	5.8	47 52.80	− 0.45	. .	−27.59	5 47 25.66	− 3.61
	4	141 Tauri	F.	15.6	18.0	19.8	26.7	28.8	31.0	37.3	39.3	42.1	54 28.73	+ 0.48	. .	−27.59	5 54 1.62	− 3.71
	5	1 Geminorum	F.	. .	. .	46.8	49.0	51.2	53.5	55.6	. .	. .	56 51.22	+ 0.49	. .	−27.59	5 56 24.12	− 3.73
	6	μ Geminorum	F.	30.7	33.3	35.0	41.8	43.9	46.0	52.7	54.4	57.0	15 43.87	+ 0.49	−27.71	−27.59	6 15 16.77	+ 0.08
7	7	λ Draconis, S.P.	S.	54.9	47.3	42.9	31.0	. .	. .	. .	. .	. .	24 19.00	− 1.92	. .	−27.46	11 23 49.62	+ 0.27
	8	ι Piscium	S.	39.3	41.7	43.2	49.4	51.4	53.4	59.6	1.2	3.7	33 51.43	+ 0.10	−27.50	−27.46	23 33 24.16	+ 0.04
	9	Moon I, S.	S.	30.7	33.2	34.9	41.2	43.2	45.3	51.7	53.2	55.9	40 43.26	− 0.08	. .	−27.46	23 40 15.72	+66.89
	10	a Andromedæ	S.	1.7	4.7	6.4	13.3	15.7	18.0	25.0	26.7	29.7	2 15.69	+ 0.49	−27.56	−27.54	0 1 48.64	+ 0.04
9	11	ε Piscium	E.	36.0	38.6	40.2	46.3	48.4	50.4	56.6	58.3	0.8	56 48.40	+ 0.24	−28.02	−27.95	0 56 20.69	+ 0.09
	12	Polaris	E.	. .	. .	33.0	56.5	21.0	48.0	16.0	. .	. .	12 22.90	+32.64	. .	−27.95	1 12 27.59	− 0.67
	13	θ^1 Ceti	E.	55.6	58.4	59.9	5.9	8.0	10.3	16.4	17.9	20.6	18 8.11	+ 0.04	−27.98	−27.95	1 17 40.20	+ 0.05
	14	Moon I, S.	E.	49.8	52.5	54.0	0.2	2.4	4.5	10.7	12.4	14.8	22 2.37	+ 0.20	. .	−27.95	1 21 34.62	+65.27
	15	π Piscium	E.	36.8	39.5	41.0	47.3	49.3	51.4	57.6	59.3	1.8	30 49.33	+ 0.30	. .	−27.95	1 30 21.68	− 2.71
	16	o Piscium	E.	56.3	58.8	0.4	6.4	8.5	10.6	16.9	18.4	21.1	39 8.60	+ 0.26	−27.90	−27.95	1 38 40.91	− 0.08
	17	β Arietis	E.	51.7	54.4	56.0	2.5	4.7	6.9	13.4	15.0	17.9	48 4.72	+ 0.43	−27.91	−27.95	1 47 37.20	− 0.02
	18	a Ceti	E.	54.0	56.6	58.0	4.0	6.2	8.3	14.4	16.0	18.6	56 6.23	+ 0.20	−27.95	−27.95	2 55 38.48	+ 0.02
	19	B. A. C. 987	E.	38.6	41.3	43.0	49.0	51.1	53.3	59.5	1.0	3.7	4 51.17	+ 0.31	. .	−27.95	3 4 23.56	− 3.20
	20	κ Ophiuchi	F.	52.3	54.9	56.5	2.6	4.6	6.8	13.0	14.5	17.0	52 4.69	+ 0.38	−28.03	−27.89	16 51 37.18	+ 0.18
10	21	Sun I, N.	F.	18.0	20.8	22.6	29.0	31.2	33.4	40.0	41.8	44.7	11 31.28	+ 0.02	. .	−27.89	17 11 3.41	. .
	22	Sun II, S.	F.	40.0	42.7	44.5	51.0	53.2	55.5	2.2	3.8	6.7	13 53.29	+ 0.02	. .	−27.89	17 13 25.42	. .
	23	a Ophiuchi	F.	. .	. .	. .	. .	. .	. .	36.0	37.5	39.9	29 27.51	+ 0.41	−27.94	−27.89	17 28 0.03	+ 0.08
	24	δ Ursæ Minoris	F.	. .	. .	8.5	44.0	19.5	55.0	31.0	. .	. .	13 19.60	+11.23	. .	−27.90	18 13 2.93	+ 0.19
	25	β Lyræ	F.	. .	. .	. .	. .	. .	. .	58.3	0.0	3.0	45 48.43	+ 0.69	−28.00	−27.90	18 45 21.22	+ 0.13
	26	ζ Aquilæ	F.	47.0	49.7	51.2	57.6	59.6	1.7	8.0	9.7	12.2	59 59.63	+ 0.42	−27.97	−27.90	18 59 32.15	+ 0.15
	27	Venus I, N.	F.	. .	. .	. .	. .	. .	. .	46.0	47.6	51.4	53 37.05	+ 0.02	. .	−27.91	19 53 9.16	+ 0.38
	28	Venus, S.	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
	29	b Pleiadum	F.	33.9	36.9	38.6	45.3	47.4	49.7	56.4	58.0	0.9	37 47.46	+ 0.59	. .	−27.95	3 37 20.10	− 3.52
	30	c Pleiadum	F.	. .	. .	. .	. .	. .	. .	52.6	54.2	56.9	38 43.57	+ 0.60	. .	−27.95	3 38 16.22	− 3.53
	31	h Pleiadum	F.	51.9	54.8	56.4	3.0	5.3	7.6	14.2	15.9	18.7	42 5.31	+ 0.60	. .	−27.95	3 41 37.96	− 3.57
	32	γ^1 Eridani	F.	. .	. .	. .	34.3	36.5	38.5	42.7	44.3	47.0	52 34.32	+ 0.15	−27.86	−27.95	3 52 6.52	− 0.05
	33	γ Tauri	F.	48.8	51.4	53.2	59.4	1.5	3.7	9.9	11.4	14.1	13 1.50	+ 0.48	−27.84	−27.95	4 12 34.03	− 0.10
	34	κ^1 Tauri	F.	2.2	5.0	6.8	13.4	15.6	17.9	24.4	26.0	28.7	18 15.56	+ 0.57	. .	−27.96	4 17 48.17	− 3.62
	35	B. A. C. 1391	F.	. .	. .	40.9	42.9	45.0	47.0	49.3	. .	. .	23 45.02	+ 0.50	. .	−27.96	4 23 17.56	− 3.51
	36	B. A. C. 1394	F.	. .	. .	54.2	56.3	58.8	0.4	2 6	. .	. .	23 58.38	+ 0.50	. .	−27.96	4 23 30.92	− 3.51
	37	11 Orionis	F.	33.6	36.2	37.8	44.1	46.3	48.5	54.8	56.3	59.0	57 46.29	+ 0.48	−27.86	−27.96	4 57 18.81	− 0.17
	38	l Tauri	F.	31.8	34.8	36.3	42.9	45.0	47.2	53.7	55.3	58.0	0 45.00	+ 0.55	. .	−27.96	5 0 17.59	− 3.67
	39	β Orionis	F.	41.9	44.4	46.0	52.1	54.2	56.1	2.5	4.0	6.7	8 54.21	+ 0.22	−28.00	−27.96	5 8 26.47	+ 0.04
	40	111 Tauri	F.	15.6	18.2	19.7	26.1	28.4	30.5	36.9	38.4	41.3	17 28.34	+ 0.51	. .	−27.96	5 17 0.89	− 3.62
	41	β Tauri	F.	. .	. .	. .	. .	. .	. .	52.5	54.3	57.2	18 43.23	+ 0.66	−27.90	−27.96	5 18 15.93	− 0.08
	42	o Tauri	F.	. .	. .	23.6	25.8	28.0	30.4	32.5	. .	. .	20 28.00	+ 0.57	. .	−27.96	5 20 0.67	− 3.73
	43	121 Tauri	F.	. .	. .	. .	. .	. .	. .	18.0	19.9	22.7	28 9.21	+ 0.61	. .	−27.96	5 27 41.86	− 3.82
	44	125 Tauri	F.	5.8	8.6	10.2	17.1	19.3	21.7	28.6	30.0	33.0	32 19.37	+ 0.62	. .	−27.96	5 31 52.03	− 3.85
	45	130 Tauri	F.	16.5	19.4	20.9	27.4	29.5	31.6	38.0	39.7	42.4	40 29.49	+ 0.52	. .	−27.96	5 40 2.05	− 3.63
	46	132 Tauri	F.	27.3	30.1	31.8	38.6	40.9	43.0	49.8	51.5	54.2	41 40.80	+ 0.60	. .	−27.96	5 41 13.44	− 3.81
	47	139 Tauri	F.	20.6	23.6	25.3	32.0	34.2	36.5	43.4	45.0	47.9	50 34.28	+ 0.63	. .	−27.96	5 50 6.95	− 3.86
	48	141 Tauri	F.	15.6	18.6	20.2	26.8	29.0	31.1	37.8	39.5	42.3	54 28.99	+ 0.57	. .	−27.96	5 54 1.60	− 3.75
	49	χ^4 Orionis	F.	37.2	39.9	41.5	48.0	50.2	52.4	58.8	0.6	3.3	56 50.21	+ 0.55	. .	−27.96	5 56 22.80	− 3.69
	50	6 Geminorum	F.	51.4	54.3	56.0	2.6	4.8	6.9	43.4	45.2	47.9	5 4.72	+ 0.58	. .	−27.97	6 4 37.33	− 3.76
12	51	g Pleiadum	S.	29.7	32.6	34.3	40.9	43.2	45.5	52.2	53.8	56.7	37 43.21	+ 0.54	. .	+28.31	3 37 15.44	− 3.53
	52	d Pleiadum	S.	4.7	6.0	10.9	13.0	15.2	17.6	19.8	24.0	25.7	39 15.22	+ 0.53	. .	+28.31	3 38 47.44	− 3.53

24, 27. Telescope micrometer reading increased one revolution in reduction.
35. Wire A used.
41, 43. Bisections at wires V and VI.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	346 52	0.6	26.7	23.8	17.7	36	. .	014	. .	028	. .	60.0	13 3 55.5	. .	+ 14.2	64 10 30.9	+ 6.2
2	345 34	10.2	6.8	4.3	28.3	35	. .	. .	. .	480	480	61.2	14 21 58.6	. .	+ 15.6	65 28 35.4	+ 5.4
3	340 46	10.6	7.1	3.3	28.2	34	. .	996	. .	010	. .	61.2	19 9 51.2	. .	+ 21.2	70 16 33.6	+ 6.2
4																	
5	344 18	12.7	9.4	4.8	29.6	32	. .	. .	. .	376	380	61.2	15 37 12.7	. .	+ 17.1	66 43 51.0	+ 4.1
6	343 38	9.0	5.0	2.7	27.5	38	. .	388	. .	388	. .	61.2	16 18 42.0	. .	+ 17.9	67 25 21.1	− 0.7
7																	
8	325 58	5.8	2.9	0.1	24.1	30	. .	987	. .	951	. .	61.0	33 56 44.9	. .	+ 40.7	85 3 46.8	+ 0.4
9	312 36	4.7	7.8	5.6	0.0	27	. .	735	510	230	. .	61.0	47 17 55.5	. .	+ 1 5.5	98 25 22.2	
10	349 26	12.1	8.5	6.3	29.5	35	. .	690	. .	690	. .	61.0	10 30 3.4	. .	+ 11.2	61 36 35.8	+ 1.3
11	328 14	6.8	3.8	1.2	24.0	30	. .	660	. .	655	. .	61.5	31 40 41.3	. .	+ 38.2	82 47 40.7	− 0.1
12	49 38	5.0	3.0	1.5	23.7	30	810	. .	810	. .	850	61.5	310 16 43.4	. .	− 1 13.0	1 21 51.6	− 0.7
13	312 12	4.3	2.7	0.5	22.7	31	. .	950	. .	900	. .	61.5	47 42 59.2	. .	+ 1 8.1	98 50 28.5	+ 1.3
14	325 6	6.5	4.3	1.0	25.3	34	750	470	420	310	030	61.5	34 49 38.9	. .	+ 43.1	85 56 43.2	
15	332 32	3.2	1.7	29.8	22.3	34	. .	480	. .	410	. .	61.5	27 23 37.2	. .	+ 32.1	78 30 30.5	+18.1
16	329 34	5.2	3.3	0.5	24.3	35	. .	820	. .	830	. .	61.5	30 22 0.0	. .	+ 36.3	81 28 57.5	+ 0.3
17	341 14	5.8	3.8	0.6	24.2	36	. .	150	. .	140	. .	61.5	18 42 5.3	. .	+ 21.0	69 48 47.5	+ 1.1
18	324 38	8.2	5.8	3.2	27.2	33	. .	700	. .	720	. .	61.5	35 17 30.3	. .	+ 43.9	86 24 35.4	− 1.7
19	333 36	6.8	4.0	2.0	24.8	32	. .	680	. .	640	. .	61.5	26 19 12.5	. .	+ 30.7	77 26 4.4	+15.5
20	330 38	3.8	0.0	27.8	23.1	38	. .	470	. .	460	. .	61.1	29 18 37.5	. .	+ 34.8	80 25 33.5	+ 1.8
21	298 20	1.7	29.3	25.5	21.1	35	340	328	. .	. .	. .	61.1	61 35 48.0	. .	+ 1 54.1	112 44 3.3	
22	297 48	2.1	28.9	26.3	21.7	37	. .	. .	. .	338	338	61.1	62 8 19.0	. .	+ 1 56.1	113 16 36.3	
23	333 42	2.7	27.8	26.3	22.1	35	. .	. .	. .	786	784	61.1	26 13 55.4	. .	+ 30.5	77 20 47.1	+ 2.4
24	47 38	2.7	29.9	25.8	23.5	36	328	326	328	330	330	61.1	312 18 19.9	. .	− 1 7.9	3 23 33.2	− 1.3
25	354 16	6.5	2.0	29.2	24.6	38	. .	. .	. .	020	020	61.1	5 40 33.3	. .	+ 6.1	56 47 0.6	+ 0.6
26	334 44	5.6	29.4	28.3	24.3	38	. .	. .	. .	312	318	61.1	25 12 36.5	. .	+ 29.1	76 19 26.8	+ 0.8
27	298 6	5.5	0.9	0.0	25.8	35	. .	. .	. .	478	. .	61.1	61 50 8.9	. .	+ 1 55.0	112 58 25.1	
28	298 6	5.5	0.9	0.0	25.8	37	. .	. .	. .	. .	526	61.1	61 50 24.7	. .	+ 1 55.0	112 58 40.9	
29	344 46	3.6	0.3	27.8	21.7	38	. .	. .	162	. .	. .	62.0	15 10 33.9	. .	+ 17.1	66 17 12.2	+15.5
30	345 0	28.8	24.8	22.5	16.4	32	. .	. .	. .	926	. .	62.0	14 55 8.3	. .	+ 16.8	66 1 46.3	+15.4
31	344 48	2.7	0.2	27.0	21.2	37	. .	978	. .	972	. .	62.0	15 8 30.6	. .	+ 17.1	66 15 8.9	+14.9
32	307 10	7.3	3.5	1.7	27.4	30	. .	158	. .	158	. .	62.0	52 44 35.1	. .	+ 1 22.8	103 52 19.1	+ 2.3
33	336 22	9 29.2	26.4	23.7	17.3	36	160	156	. .	. .	. .	62.0	23 33 59.1	. .	+ 27.5	74 40 47.8	− 0.1
34	343 2	5.9	3.1	29.3	23.4	32	. .	720	. .	. .	. .	62.0	16 53 12.6	. .	+ 19.2	67 59 53.0	+12.4
35	336 56	4.2	0.7	29.3	22.0	38	. .	. .	. .	898	890	62.0	22 58 11.8	. .	+ 26.7	74 4 59.7	+11.5
36	336 56	4.2	0.7	29.3	22.0	39	. .	. .	. .	280	280	62.0	23 0 51.9	. .	+ 26.8	74 7 39.9	+11.5
37	336 16	3.6	0.2	28.2	21.3	34	. .	470	. .	460	. .	62.0	23 39 37.2	. .	+ 27.6	74 46 26.0	+ 0.6
38	341 18	4.1	0.9	28.5	22.8	37	. .	144	. .	144	. .	62.0	18 38 19.1	. .	+ 21.3	64 45 1.6	+ 9.0
39	312 42	1.5	27.9	26.5	21.8	34	. .	000	. .	990	. .	62.0	47 13 28.4	. .	+ 1 8.1	98 20 57.7	+ 0.6
40	338 18	11.9	9.2	5.7	0.3	32	978	964	. .	. .	. .	62.0	21 37 22.8	. .	+ 25.0	72 44 9.0	+ 7.6
41	349 32	5.3	1.6	29.4	23.0	34	. .	. .	004	002	. .	62.0	10 23 31.6	. .	+ 11.6	61 30 4.4	+ 0.1
42	312 52	3.7	28.6	26.8	20.2	34	. .	. .	. .	808	812	62.0	17 3 41.5	. .	+ 19.4	68 10 22.1	+ 6.8
43	345 0	4.8	1.9	29.2	23.3	36	. .	. .	416	420	. .	62.0	13 56 8.6	. .	+ 15.7	65 2 45.5	+ 6.7
44	346 52	6.1	3.3	1.2	25.7	35	. .	460	. .	470	. .	62.0	13 3 55.9	. .	+ 14.6	64 10 31.7	+ 6.3
45	338 44	6.5	3.0	1.9	25.6	37	344	340	. .	. .	. .	62.0	21 12 25.0	. .	+ 24.5	72 19 10.7	+ 5.8
46	345 34	1.2	27.6	25.9	19.4	35	. .	. .	. .	930	934	62.0	14 21 57.5	. .	+ 16.2	65 28 34.9	+ 5.4
47	346 58	0.1	27.3	25.3	19.7	32	. .	960	. .	960	. .	62.0	12 57 11.4	. .	+ 14.5	64 3 47.1	+ 4.6
48	343 26	7.5	4.2	1.3	25.3	34	. .	008	. .	010	. .	62.0	16 29 34.0	. .	+ 18.7	67 36 13.9	+ 4.4
49	341 12	6.9	3.5	0.1	25.3	39	. .	180	. .	180	. .	62.0	18 44 52.8	. .	+ 21.4	69 51 35.4	+ 4.3
50	343 58	10.9	7.6	4.4	28.7	32	. .	366	. .	362	. .	62.0	15 57 12.0	. .	+ 18.0	67 .3 51.2	+ 3.4
51	344 56	10.5	5.9	4.0	27.4	35	577	663	. .	. .	. .	62.1	15 0 1.3	. .	+ 16.7	66 6 39.2	+15.6
52	344 36	7.1	3.9	0.3	24.5	36	. .	. .	. .	741	747	62.1	15 20 15.5	. .	+ 17.0	66 26 53.7	+15.4

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
6	30.27	36.0	30.8
8	30.10	38.4	33.8
10	30.10	. .	32.7
12	29.910	23.0	19.5
19	29.940	21.5	19.0
20	30.20	24.0	23.2
22	30.20	25.0	24.2
29	30.33	22.0	17.8
46	. .	. .	17.4
50	30.35	22.0	18.2
51	. .	. .	20.8

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
9	−42 54.3	− 16 0.0	. .	− 58 54.3
14	−32 41.2	− 15 42.8	. .	− 48 24.0
21	− 7.9	+ 16 16.5	. .	+ 16 8.6
22	− 7.9	− 16 16.5	. .	− 16 24.5
27	− 6.4	+ 7.9	. .	+ 1.5
28	− 6.4	− 7.9	. .	− 14.3

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Dec. 12	1	Moon I, S.	S.	55.8	58.6	0.3	7.0	9.2	11.4	18.0	19.7	22.4	56 9.16	+ 0.48	. .	−28.31	3 55 41.33	+67.65
	2	γ Tauri	S.	49.4	52.0	53.7	0.1	2.1	4.2	10.7	12.2	14.8	13 2.13	+ 0.41	−28.40	−28.32	4 12 34.22	+ 0.09
	3	κ^2 Tauri	S.	8.7	10.3	14.8	17.0	19.2	21.3	23.6	27.9	29.6	18 19.16	+ 0.51	. .	−28.32	4 17 51.35	− 3.64
	4	θ^2 Tauri	S.	40.0	42.7	44.2	50.8	52.8	55.0	1.3	2.9	5.6	21 52.81	+ 0.42	. .	−28.32	4 21 24.91	− 3.51
	5	85 Tauri	S.	51.9	54.7	56.0	2.5	4.6	6.7	13.2	14.7	17.4	25 4.63	+ 0.42	. .	−28.32	4 24 36.73	− 3.52
	6	α Tauri	S.	53.2	55.9	57.6	4.0	6.0	8.1	14.6	16.0	18.7	29 6.01	+ 0.42	−28.24	−28.32	4 28 38.11	− 0.10
	7	ε Ursæ Minoris, S.P.	S.	. .	. .	1.4	46.0	30.9	14.4	0.0	. .	. .	59 30.54	− 4.66	. .	−28.33	16 58 57.55	+ 1.11
	8	117 Tauri	S.	54.5	57.2	58.8	5.0	7.3	9.5	15.8	17.5	20.2	21 7.31	+ 0.44	. .	−28.33	5 20 39.42	− 3.64
13	9	Sun I, N.	E.	33.0	36.0	37.8	44.4	46.6	49.0	55.8	57.5	0.0	24 46.68	− 0.08	. .	−28.72	17 24 17.88	. .
	10	Sun II, S.	E.	55.5	58.2	0.0	6.7	8.8	11.3	17.8	19.4	22.2	27 8.88	− 0.08	. .	−28.72	17 26 40.08	. .
	11	α Lyræ	E.	48.1	51.5	53.5	1.3	4.0	6.6	14.4	16.3	19.6	33 3.92	+ 0.64	−28.66	−28.74	18 32 35.82	− 0.06
	12	β Lyræ	E.	34.5	37.5	39.4	46.8	49.3	51.7	59.0	0.7	3.9	45 49.20	+ 0.55	−28.63	−28.74	18 45 21.01	− 0.08
	13	γ Aquilæ	E.	27.0	29.8	31.3	37.5	39.6	41.6	47.9	49.5	52.0	40 39.58	+ 0.28	−28.75	−28.76	19 40 11.10	+ 0.03
	14	α Aquilæ	E.	49.0	51.6	53.3	59.4	1.4	3.5	9.7	11.2	13.9	45 1.44	+ 0.26	−28.69	−28.76	19 44 32.94	− 0.03
	15	β Aquilæ	E.	18.5	21.0	22.6	28.8	30.8	32.9	39.0	40.6	43.1	49 30.81	+ 0.24	−28.75	−28.76	19 49 2.29	+ 0.02
	16	Venus I, N.	E.	54.3	56.9	58.4	5.1	7.4	9.8	16.3	17.9	20.7	9 7.42	− 0.06	. .	−28.77	20 8 38.59	+ 0.38
	17	Venus, S.	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	18	α Cygni	E.	14.6	18.3	20.4	29.0	32.0	34.7	43.4	45.6	49.3	37 31.92	+ 0.75	−28.72	−28.78	20 37 3.89	− 0.04
	19	ζ Arietis	E.	51.5	54.3	55.9	2.5	4.6	6.8	13.4	14.9	17.8	8 4.63	+ 0.47	−28.98	−28.91	3 7 36.19	+ 0.03
	20	α Persei	E.	25.0	28.8	31.2	40.7	43.7	46.9	56.5	58.7	2.7	15 43.80	+ 0.96	. .	−28.91	3 15 15.85	− 0.04
	21	m Pleiadum	E.	. .	. .	59.1	1.5	3.6	6.0	8.3	. .	. .	38 3.70	+ 0.52	. .	−28.92	3 37 35.30	− 3.58
	22	c Pleiadum	E.	. .	. .	40.4	42.6	44.8	47.0	49.3	. .	. .	38 44.82	+ 0.51	. .	−28.92	3 38 16.41	− 3.54
	23	η Tauri	E.	11.3	14.3	16.0	22.5	24.7	27.0	33.6	35.4	38.1	40 24.77	+ 0.50	−29.02	−28.92	3 39 56.35	+ 0.10
	24	γ^1 Eridani	E.	22.8	25.5	27.0	33.3	35.4	37.5	43.9	45.4	48.0	52 35.42	+ 0.09	−28.89	−28.93	3 52 6.58	0.00
	25	γ Tauri	E.	50.0	52.6	54.2	0.6	2.7	4.9	11.2	13.0	15.5	13 2.74	+ 0.40	−28.99	−28.93	4 12 34.21	+ 0.07
	26	63 Tauri	E.	. .	. .	32.3	34.4	36.7	38.9	40.9	. .	. .	16 36.64	+ 0.42	. .	−28.93	4 16 8.13	− 3.52
	27	κ^1 Tauri	E.	. .	. .	12.3	14.4	16.7	18.9	21.0	. .	. .	18 16.16	+ 0.48	. .	−28.93	4 17 48.21	− 3.61
	28	v^1 Tauri	E.	0.7	2.3	6.7	9.0	11.2	13.4	15.7	20.6	21.8	19 11.20	+ 0.49	. .	−28.93	4 18 42.76	− 3.66
	29	v^2 Tauri	E.	. .	. .	5.8	8.0	10.5	12.6	14.9	. .	. .	20 10.36	+ 0.49	. .	−28.93	4 19 41.92	− 3.67
	30	75 Tauri	E.	. .	. .	. .	. .	41.6	43.7	48.0	49.6	52.4	21 39.51	+ 0.41	. .	−28.94	4 21 10.98	− 3.53
	31	80 Tauri	E.	10.6	12.8	14.4	20.7	22.8	25.0	31.3	33.0	35.5	23 22.83	+ 0.40	. .	−28.94	4 22 54.29	− 3.52
	32	81 Tauri	E.	40.2	42.9	44.5	50.8	52.9	55.0	1.2	3.0	5.7	23 52.91	+ 0.40	. .	−28.94	4 23 24.37	− 3.52
	33	Moon I, N.	E.	35.7	38.7	40.4	47.3	49.5	51.8	58.5	0.3	3.0	50 49.47	+ 0.50	. .	−28.94	4 50 21.03	+68.72
	34	Moon, S.	E.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	35	11 Orionis	E.	34.7	37.4	39.0	45.4	47.5	49.6	56.0	57.5	0.4	57 47.50	+ 0.40	−28.96	−28.95	4 57 18.95	− 0.06
	36	105 Tauri	E.	35.4	38.0	39.8	46.4	48.6	50.8	57.4	59.0	1.9	0 48.59	+ 0.48	. .	−28.95	5 0 20.12	− 3.74
	37	111 Tauri	E.	16.8	19.4	21.0	27.5	29.6	31.7	38.0	39.7	42.4	17 29.57	+ 0.43	. .	−28.95	5 17 1.05	− 3.65
	38	o Tauri	E.	16.0	18.7	20.4	26.9	29.0	31.3	37.9	39.6	42.3	20 29.12	+ 0.48	. .	−28.95	5 20 0.65	− 3.77
	39	117 Tauri	E.	. .	. .	3.8	5.9	8.0	10.1	12.3	. .	. .	21 8.02	+ 0.42	. .	−28.96	5 20 39.48	− 3.65
	40	ζ Tauri	E.	18.8	21.6	23.1	29.8	32.0	34.0	40.6	42.5	45.0	30 31.93	+ 0.58	. .	−28.96	5 30 3.55	− 3.76
	41	125 Tauri	E.	7.0	10.0	11.6	18.4	20.6	22.9	29.6	31.5	34.2	32 20.64	+ 0.53	. .	−28.96	5 31 52.21	− 3.90
	42	α Orionis	E.	34.5	36.8	38.5	44.6	46.6	48.8	55.0	56.6	59.0	48 46.71	+ 0.31	−29.03	−28.96	5 48 18.06	+ 0.04
	43	139 Tauri	E.	21.9	24.8	26.5	33.4	35.5	37.7	44.5	46.4	49.0	50 35.52	+ 0.54	. .	−28.96	5 50 7.10	− 3.91
	44	χ^3 Orionis	E.	. .	. .	20.7	22.9	25.0	27.3	29.4	. .	. .	56 25.06	+ 0.46	. .	−28.97	5 55 56.55	− 3.73
	45	χ^4 Orionis	E.	. .	. .	. .	. .	. .	. .	0.1	1.7	4.3	56 51.34	+ 0.46	. .	−28.97	5 56 22.83	− 3.74
	46	68 Orionis	E.	45.8	48.5	50.0	56.6	58.8	1.0	7.4	9.0	11.8	4 58.77	+ 0.45	. .	−28.97	6 4 30.25	− 3.73
	47	η Geminorum	E.	30.9	32.5	36.9	39.1	41.4	43.6	45.7	50.2	51.9	7 41.36	+ 0.49	. .	−28.97	6 7 12.88	− 3.80
	48	δ Ursæ Minoris, S.P.	E.	. .	. .	51.0	16.5	40.5	6.0	32.0	. .	. .	13 41.20	+10.41	. .	−28.97	18 13 1.82	− 0.35
	49	μ Geminorum	E.	32.0	34.7	36.3	43.0	45.3	47.5	54.0	55.8	58.6	15 45.24	+ 0.49	−28.94	−28.97	6 15 16.76	− 0.07
	50	ν Geminorum	E.	41.0	43.6	45.4	51.9	54.0	56.3	2.7	4.3	7.0	21 54.02	+ 0.46	. .	−28.98	6 21 25.50	− 3.73
	51	γ Geminorum	E.	. .	. .	49.0	51.0	53.3	55.4	59.7	1.4	3.9	30 51.14	+ 0.42	+28.91	−28.98	6 30 22.58	− 0.10

32. Wire A used.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corrections.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	340 44	6.2	2.8	0.1	24.2	38	. .	665	478	360	. .	62.1	19 12 41.8	. .	+ 21.6	70 19 24.6	
2																	
3	342 58	0.9	28.1	24.0	19.7	39	. .	347	. .	323	. .	62.1	16 58 49.5	. .	+ 19.0	68 5 29.7	+12.4
4	336 38	4.8	0.7	28.5	22.7	35	. .	602	. .	543	. .	62.1	23 17 55.1	. .	+ 26.8	74 24 43.1	+11.6
5	336 38	4.8	0.7	28.5	22.7	37	. .	926	. .	948	. .	62.1	23 18 31.5	. .	+ 26.8	74 25 19.5	+11.4
6	337 18	4.6	0.3	27.6	22.8	36	. .	. .	. .	177	133	62.1	22 38 3.7	. .	+ 25.9	73 44 50.8	+ 1.9
7																	
8	338 10	13.2	9.3	6.9	1.0	32	. .	. .	. .	702	636	62.1	21 45 18.9	. .	+ 24.7	72 52 4.8	+ 8.9
9	298 8	5.7	0.7	29.0	26.0	38	640	660	. .	. .	. .	59.7	61 48 41.0	. .	+ 1 52.6	112 56 54.8	
10	297 34	10.5	4.8	4.8	1.1	33	. .	. .	. .	090	020	59.7	62 21 19.8	. .	+ 1 55.2	113 29 36.2	
11	359 42	4.2	2.1	0.8	27.6	34	. .	460	. .	500	. .	59.7	0 13 38.1	. .	+ 0.2	51 19 59.5	− 0.7
12	354 16	7.5	5.5	5.0	26.0	37	. .	. .	. .	910	930	59.7	5 40 30.8	. .	+ 6.0	56 46 58.0	− 2.8
13	331 20	2.5	0.5	28.3	20.0	31	. .	490	. .	440	. .	59.7	28 34 48.3	. .	+ 32.9	79 41 42.4	− 1.0
14	329 34	29.3	27.3	26.3	18.7	32	. .	510	. .	540	. .	59.7	30 21 2.1	. .	+ 36.2	81 27 59.5	+ 0.7
15	327 8	3.8	1.4	29.2	25.2	34	. .	480	. .	480	. .	59.7	32 47 36.6	. .	+ 38.9	83 54 36.7	+ 1.4
16	298 50	1.5	0.0	29.2	23.3	39	690	. .	. .	. .	710	59.7	61 6 55.1	. .	+ 1 49.0	112 15 5.3	
17	298 50	1.5	0.0	29.2	23.3	40	. .	570	. .	550	. .	59.7	61 7 8.5	. .	+ 1 49.0	112 15 18.7	
18	5 52	29.0	29.8	26.6	17.5	36	. .	310	. .	320	. .	59.7	354 4 0.9	. .	− 6.3	45 10 15.8	− 1.7
19	341 36	5.7	4.2	0.4	24.2	31	. .	580	. .	620	. .	61.7	18 18 55.7	. .	+ 20.3	69 25 37.2	+ 1.3
20	10 26	5.0	3.3	1.7	23.7	32	. .	950	. .	020	. .	61.7	349 29 17.0	. .	− 11.4	40 35 26.8	− 0.9
21	345 28	9.1	6.1	3.5	26.5	31	675	665	. .	. .	. .	61.7	14 26 59.6	. .	+ 15.8	65 33 36.6	+16.3
22	345 0	1.5	28.0	23.5	16.9	32	990	010	. .	. .	. .	61.7	14 55 11.2	. .	+ 16.4	66 1 48.8	+16.2
23	344 46	3.2	0.4	26.2	20.8	38	. .	685	. .	660	. .	61.7	15 10 40.9	. .	+ 16.7	66 17 18.8	+ 0.7
24	307 10	1.3	27.5	26.2	21.0	30	. .	780	. .	770	. .	61.7	52 44 38.2	. .	+ 1 20.7	103 52 20.1	+ 2.8
25	336 22	2.5	29.7	27.4	19.3	36	. .	070	. .	040	. .	61.7	23 34 0.2	. .	+ 26.8	74 40 48.2	+ 0.2
26	337 32	4.9	29.7	28.3	19.3	37	. .	780	. .	760	. .	61.7	22 24 27.4	. .	+ 25.4	73 31 14.0	+12.6
27	343 2	6.0	3.6	0.1	23.9	32	620	640	. .	. .	. .	61.7	16 53 11.4	. .	+ 18.7	67 59 51.3	+13.1
28	343 34	3.3	0.0	27.8	21.3	35	590	600	. .	. .	. .	61.7	16 21 54.2	. .	+ 18.1	67 28 33.5	+13.1
29	343 46	7.4	1.7	28.4	21.9	39	140	110	. .	. .	. .	61.7	16 10 50.2	. .	+ 17.8	67 17 29.2	+13.0
30	337 8	2.0	27.5	26.9	19.0	38	990	040	. .	. .	. .	61.7	22 48 44.9	. .	+ 25.9	73 55 32.0	+12.2
31	336 26	3.2	0.2	28.4	21.6	42	. .	. .	. .	490	480	61.7	23 31 40.1	. .	+ 26.8	74 38 28.1	+12.1
32	336 26	3.2	0.2	28.4	21.6	39	. .	. .	. .	460	440	61.7	23 28 19.3	. .	+ 26.7	74 35 7.2	+12.1
33	344 34	7.5	4.8	1.5	24.3	33	710	620	. .	. .	. .	61.7	15 21 25.2	1050	+ 16.9	66 28 3.3	
34	344 4	3.3	0.5	27.7	21.0	36	. .	. .	720	570	420	61.7	15 52 11.2	. .	+ 17.5	66 58 49.9	
35	336 16	7.8	4.5	2.0	24.2	34	. .	340	. .	320	. .	61.7	23 39 38.6	. .	+ 27.0	74 46 26.8	+ 1.4
36	342 34	3.1	0.2	27.5	20.2	32	. .	890	. .	900	. .	61.7	17 21 12.2	. .	+ 19.2	68 27 52.6	+ 9.7
37	338 18	10.2	7.5	4.3	27.5	33	. .	240	. .	190	. .	61.7	21 37 24.2	. .	+ 24.4	72 44 9.8	+ 8.2
38	342 52	1.3	28.0	25.7	18.9	34	. .	970	. .	980	. .	61.7	17 3 42.4	. .	+ 18.9	68 10 22.5	+ 8.0
39	338 10	29.7	26.5	24.3	16.3	33	. .	. .	. .	550	510	61.7	21 45 18.4	. .	+ 24.6	72 52 4.2	+ 7.9
40	342 6	7.2	4.5	1.0	24.8	33	. .	740	. .	750	. .	61.7	17 49 29.4	. .	+ 19.8	68 56 10.4	+ 7.2
41	346 52	4.6	1.8	29.0	22.0	35	. .	730	. .	720	. .	61.7	13 3 57.3	. .	+ 14.3	64 10 32.8	+ 7.0
42	328 26	7.7	4.3	2.1	25.1	35	. .	990	. .	000	. .	61.7	31 30 4.3	. .	+ 37.7	82 37 3.2	+ 0.4
43	346 58	7.5	3.6	1.2	25.2	32	. .	630	. .	670	. .	61.7	12 57 12.6	. .	+ 14.2	64 3 48.0	+ 4.6
44	340 44	4.0	29.9	27.4	20.5	35	240	270	. .	. .	. .	61.7	19 11 48.8	. .	+ 21.4	70 18 31.4	+ 4.3
45	341 12	5.6	3.5	0.0	22.8	39	. .	. .	. .	340	320	61.7	18 44 53.8	. .	+ 20.9	69 51 35.9	+ 4.3
46	340 52	2.8	29.9	27.3	20.0	36	. .	950	. .	970	. .	61.7	19 4 14.4	. .	+ 21.3	70 10 56.9	+ 3.6
47	343 36	5.6	2.8	29.5	23.5	39	. .	000	. .	000	. .	61.7	16 20 48.6	. .	+ 18.1	67 27 27.9	+ 3.2
48	54 24	6.0	4.5	2.4	25.6	33	760	. .	. .	. .	780	61.7	305 31 29.7	. .	− 1 26.3	356 36 24.6	0.0
49	343 38	5.1	3.0	0.2	23.1	38	. .	. .	. .	540	530	61.7	16 18 41.5	. .	+ 18.1	67 25 20.8	+ 0.3
50	341 20	29.5	25.6	23.0	15.2	35	. .	640	. .	690	. .	61.7	18 35 50.3	1048	+ 20.8	69 42 32.3	+ 2.1
51	337 32	5.2	2.3	0.2	22.3	31	. .	. .	. .	310	260	61.7	22 22 49.7	1048	+ 25.4	73 29 36.3	+ 1.0

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
2	. .	. .	20.5
8	. .	. .	22.0
10	30.130	31.2	33.5
17	30.070	36.0	
24	30.030	29.5	24.8
34	. .	. .	24.5
39	30.04	28.0	24.5
50	. .	. .	23.0
51	30.050	27.0	23.0

* *For summary of the elements of reduction see page* 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
1	−18 14.8	− 15 17.9	. .	− 33 32.6
9	− 7.9	+ 16 20.7	. .	+ 16 12.8
10	− 7.9	− 16 20.7	. .	− 16 28.6
16	− 6.5	+ 6.7	. .	+ 0.2
17	− 6.5	− 6.7	. .	− 13.2
33	−14 31.4	+ 15 9.0	− 0.3	+ 37.3
34	−15 0.3	− 15 9.0	. .	− 30 9.3

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DATE.	Number.	OBJECT.	Observer.	SECONDS OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	VIII	IX.	Mean wire.	CORRECTIONS. Inst.	Clock appar'nt.	Clock adopted.	Apparent Right Ascension.	Miscellan'us Corrections.
1872.													m. s.	s.	s.	s.	h. m. s.	s.
Dec. 14	1	Sun I, N.	F.	59.4	2.0	3.7	10.4	12.6	14.8	21.5	23.0	25.9	29 12.59	− 0.16	. .	−29.13	17 28 43.30	. .
	2	Sun I, S.	F.	21.4	24.2	25.9	32.6	34.8	37.3	43.7	45.4	48.0	31 34.81	− 0.16	. .	−29.13	17 31 5.52	. .
	3	δ Ursæ Minoris	F.	. .	. .	. .	. .	. .	55.0	29.5	38.0	47.5	13 20.32	+ 9.39	. .	−29.14	18 13 0.57	− 1.51
	4	α Lyræ	F.	48.7	52.0	54.0	1.8	4.5	7.0	15.0	16.9	20.0	33 4.43	+ 0.62	−29.15	−29.14	18 32 35.91	+ 0.03
	5	γ Aquilæ	F.	27.6	30.2	31.8	38.0	40.0	42.0	48.0	49.9	52.6	40 40.01	+ 0.22	−29.12	−29.16	19 40 11.07	− 0.01
	6	α Aquilæ	F.	. .	. .	47.9	0.0	2.0	4.0	6.0	. .	. .	45 1.98	+ 0.19	−29.16	−29.16	19 44 33.01	+ 0.04
	7	β Aquilæ	F.	. .	. .	29.0	31.3	33.3	35.4	39.4	41.0	43.5	49 31.21	+ 0.17	−29.09	−29.16	19 49 2.22	− 0.04
	8	a^2 Capricorni	F.	14.9	17.5	19.3	25.5	27.5	29.5	35.8	37.6	40.4	11 27.56	− 0.06	−29.32	−29.17	20 10 58.33	+ 0.19
	9	Venus I, N.	F.	1.8	4.8	6.3	12.7	15.0	17.3	23.9	25.6	28.4	14 15.09	− 0.17	. .	−29.17	20 13 45.75	+ 0.38
	10	Venus, S.	F.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. . .	. .	. .	. .	. . . .	. .
	11	ε Delphini	F.	23.2	25.8	27.3	33.6	35.7	37.7	43.9	45.4	48.0	27 35.62	+ 0.22	−29.15	−29.17	20 27 6.67	+ 0.03
22	12	c Pleiadum	F.	55.3	58.0	59.8	6.3	8.6	10.8	17.6	19.0	22.0	38 8.60	+ 0.67	. .	−30.28	3 37 38.99	− 3.54
	13	d Pleiadum	F.	3.6	6.2	7.9	14.9	17.0	19.3	26.0	27.7	30.5	39 17.01	+ 0.66	. .	−30.28	3 38 47.39	− 3.54
	14	η Tauri	F.	. .	. .	. .	. .	. .	. .	34.7	36.4	39.0	40 25.73	+ 0.66	−30.15	−30.28	3 39 56.11	− 0.13
	15	γ Tauri	F.	51.0	53.9	55.5	1.9	4.0	6.0	12.5	14.0	16.6	13 3.93	+ 0.57	−30.32	−30.29	4 12 34.21	+ 0.04
	16	δ^3 Tauri	F.	. .	. .	34.2	36.3	38.4	40.5	42.6	. .	. .	18 38.40	+ 0.60	. .	−30.29	4 18 8.71	− 3.59
	17	71 Tauri	F	. .	. .	32.2	34.3	36.5	38.6	40.8	. .	. .	19 36.48	+ 0.57	. .	−30.29	4 19 6.76	− 3.55
	18	θ^1 Tauri	F	36.5	39.0	40.7	47.0	49.2	51.4	57.7	59.4	1.9	21 49.20	+ 0.57	. .	−30.29	4 21 19.48	− 3.56
	19	105 Tauri	F.	36.4	39.3	41.0	47.7	49.7	52.0	58.6	0.2	2.9	0 49.76	+ 0.64	. .	−30.30	5 0 20.10	− 3.81
	20	α Aurigæ	F.	30.7	34.3	36.5	45.2	48.2	51.2	0.0	2.0	5.9	7 48.22	+ 1.01	. .	−30.30	5 7 18.93	− 0.09
	21	β Orionis	F.	44.0	46.9	48.4	54.4	56.6	58.6	4.9	6.4	9.0	8 56.58	+ 0.34	−30.40	−30.30	5 8 26.62	+ 0.10
	22	o Tauri	F.	17.0	20.0	21.7	28.2	30.4	32.7	39.2	41.0	43.7	20 30.43	+ 0.64	. .	−30.30	5 20 0.77	− 3.87
	23	ι Geminorum	F.	. .	. .	49.4	51.7	54.0	56.3	58.4	. .	. .	56 53.96	+ 0.66	. .	−30.31	5 56 24.31	− 3.96
	24	6 Geminorum	F.	53.9	56.8	58.2	5.0	7.1	9.3	16.0	17.6	20.4	5 7.14	+ 0.65	. .	−30.31	6 4 37.48	− 3.96
	25	71 Orionis	F.	39.8	42.3	43.9	50.4	52.6	54.8	1.0	2.8	5.5	7 52.57	+ 0.61	. .	−30.31	6 7 22.87	− 3.87
	26	δ Ursæ Minoris, S.P.	F.	. .	. .	50.5	16.5	41.5	6.0	. .	. .	. .	13 41.38	− 9.85	. .	−30.31	18 13 1.22	+ 0.12
23	27	b Pleiadum	E.	. .	. .	46.0	48.3	50.5	52.7	55.0	. .	. .	37 50.50	+ 0.52	. .	−30.88	3 37 20.14	− 3.53
	28	e Pleiadum	E.	. .	. .	4.8	7.0	9.3	11.7	14.0	. .	. .	38 9.36	+ 0.52	. .	−30.88	3 37 39.00	− 3.54
	29	η Tauri	E.	13.0	16.0	17.8	24.5	26.6	29.0	35.5	37.2	39.9	40 26.61	+ 0.52	−30.89	−30.88	3 39 56.25	+ 0.01
	30	γ Tauri	E.	52.0	54.6	56.2	2.6	4.7	6.8	13.3	14.7	17.4	13 4.70	+ 0.41	−30.92	−30.89	4 12 34.22	+ 0.04
	31	κ^2 Tauri	E.	. .	. .	17.2	19.4	21.7	23.9	26.0	. .	. .	18 21.64	+ 0.50	. .	−30.89	4 17 51.25	− 3.65
	32	δ^3 Tauri	E.	. .	. .	. .	39.2	41.2	43.5	47.7	49.2	52.0	18 39.13	+ 0.44	. .	−30.89	4 18 8.68	− 3.59
	33	71 Tauri	E.	. .	. .	36.0	37.2	39.3	41.4	45.7	47.3	49.9	19 37.19	+ 0.41	. .	−30.89	4 19 6.71	− 3.55
	34	75 Tauri	E.	28.9	31.4	32.9	39.3	41.4	43.5	50.0	51.6	54.0	21 41.44	+ 0.44	. .	−30.89	4 21 10.99	− 3.60
	35	B. A. C. 1391	E.	35.6	38.0	39.6	46.0	48.3	50.4	56.7	58.2	1.0	23 48.20	+ 0.42	. .	−30.89	4 23 17.73	− 3.57
	36	B. A. C. 1394	E.	. .	. .	. .	. .	. .	. .	10.0	11.5	14.3	24 1.48	+ 0.42	. .	−30.89	4 23 31.01	− 3.57
	37	α Tauri	E.	56.0	58.5	0.2	6.6	8.7	10.9	17.3	18.9	21.5	29 8.73	+ 0.42	−30.90	−30.89	4 28 38.26	− 0.01
	38	11 Orionis	E.	36.6	39.3	40.8	47.3	49.6	51.6	58.0	59.6	2.3	57 49.46	+ 0.41	−30.85	−30.90	4 57 18.97	− 0.12
	39	l Tauri	E.	. .	. .	44.0	46.2	48.3	50.6	52.7	. .	. .	0 48.36	+ 0.47	. .	−30.91	5 0 17.92	− 3.79
	40	6 Geminorum	E.	54.5	57.5	59.0	5.5	7.8	10.0	16.8	18.4	21.3	5 7.87	+ 0.51	. .	−30.93	6 4 37.45	− 3.97
	41	71 Orionis	E.	. .	. .	48.9	51.0	53.1	55.3	57.6	. .	. .	7 53.18	+ 0.46	. .	−30.93	6 7 22.71	− 3.87
	42	δ Ursæ Minoris, S. P.	E.	. .	. .	52.5	18.0	42.5	7.0	32.5	. .	. .	13 42.50	−10.74	. .	−30.93	18 13 0.83	− 0.22
24	43	m Pleiadum	S.	. .	. .	1.2	3.5	5.8	7.9	10.3	. .	. .	38 5.74	+ 0.74	. .	−31.16	3 37 35.32	− 3.55
	44	γ Tauri	S.	52.0	54.8	56.2	2.6	4.8	6.8	13.3	14.9	17.5	13 4.77	+ 0.64	−31.22	−31.18	4 12 34.23	+ 0.05
	45	v^1 Tauri	S.	0.0	2.8	4.5	11.0	13.1	15.4	22.0	23.8	26.4	19 13.22	+ 0.72	. .	−31.18	4 18 42.76	− 3.70
	46	v^2 Tauri	S.	. .	. .	8.0	10.2	12.3	14.7	16.9	. .	. .	20 12.42	+ 0.73	. .	−31.18	4 19 41.97	− 3.71
	47	α Tauri	S.	56.0	58.7	0.3	6.5	8.7	11.0	17.4	19.0	21.6	29 8.80	+ 0.65	−31.20	−31.18	4 28 38.27	0.00
	48	115 Tauri	S.	3.7	6.3	7.9	14.4	16.5	18.8	25.0	26.6	29.3	20 16.50	+ 0.67	. .	−31.18	5 19 45.99	− 3.78
	49	α Orionis	S.	36.4	39.0	40.5	46.6	48.7	50.8	57.0	58.4	1.0	48 48.71	+ 0.56	−31.14	−31.19	5 48 18.08	− 0.08
	50	68 Orionis	S.	47.9	50.5	52.0	58.6	0.7	3.0	9.6	11.2	13.9	5 0.82	+ 0.69	. .	−31.21	6 4 30.30	− 3.89
	51	η Geminorum	S.	. .	. .	38.7	41.1	43.6	45.8	48.0	. .	. .	7 43.44	+ 0.72	. .	−31.21	6 7 1/2.95	− 3.97
	52	δ Ursæ Minoris, S.P.	S.	8.5	26.8	0.0	50.6	15.6	42.5	. .	. .	. .	13 41.88	− 9.94	. .	−31.21	18 13 0.73	− 0.27

11. Telescope micrometer reading decreased one revolution in reduction.
35. Wire A used.

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Number.	Circle Division.	MICROSCOPE MICROMS. V.	VI.	VII.	VIII.	TELESCOPE MICROMETER. Rev.	1.	2.	3.	4.	5.	Zenith Point Correction.	Apparent Zenith Distance, South.	Sympiesometer.	Refraction.	Apparent North Polar Distance.	Miscellan'us Corretions.
	° ′	r. ″	″	″	″							″	° ′ ″		′ ″	° ′ ″	″
1	298 4	8.5	7.7	4.5	27.8	36	434	424	. .	. .	. .	59.5	61 52 10.9	. .	+ 1 50.3	113 0 22.4	
2	297 32	8.0	6.7	5.1	28.2	38	. .	. .	. .	526	546	59.5	62 24 43.0	. .	+ 1 51.8	113 32 56.0	
3																	
4	359 42	4.1	1.1	0.7	24.3	34	. .	. .	. .	562	570	59.5	0 13 38.2	. .	+ 0.2	51 19 59.6	+ 0.9
5	331 20	6.8	0.3	2.7	26.6	31	. .	. .	. .	422	410	59.5	28 34 51.1	. .	+ 32.1	79 41 44.4	+ 0.8
6	329 34	2.5	28.2	28.5	24.2	32	426	424	. .	. .	. .	59.5	30 22 3.4	. .	+ 34.5	81 28 59.1	+ 0.2
7	327 8	10.5	6.5	4.2	0.4	34	. .	. .	. .	154	146	59.5	32 47 36.8	. .	+ 37.9	83 54 35.9	+ 0.5
8	308 6	9.2	4.5	4.5	1.6	30	. .	. .	. .	709	712	59.5	51 48 43.4	. .	+ 1 14.6	102 56 19.2	− 1.2
9	299 4	7.8	3.7	2.8	0.8	33	004	. .	. .	. .	958	59.5	60 51 17.0	. .	+ 1 45.0	111 59 23.2	
10	299 4	7.8	3.7	2.8	0.8	33	. .	000	. .	958	. .	59.5	60 51 32.4	. .	+ 1 45.1	111 59 38.7	
11	331 54	7.7	3.9	2.5	29.7	31	. .	892	. .	890	. .	59.5	28 0 45.0	. .	+ 31.2	79 7 37.4	− 2.7
12	345 6	9.1	7.3	5.5	27.6	32	600	588	. .	. .	. .	63.1	14 49 16.3	. .	+ 16.9	65 55 54.4	+15.9
13	344 36	6.0	2.7	0.2	28.1	37	. .	600	. .	608	. .	63.1	15 20 14.6	. .	+ 17.5	66 26 53.4	+15.7
14	344 46	4.6	1.6	28.2	23.2	38	. .	. .	. .	338	332	63.1	15 10 38.8	. .	+ 17.4	66 17 17.4	− 0.5
15	336 22	4.1	0.2	27.9	21.6	35	. .	840	. .	836	. .	63.1	23 33 59.4	. .	+ 27.9	74 40 48.5	+ 0.4
16																	
17																	
18	336 44	6.6	3.9	1.0	25.2	37	. .	392	. .	388	. .	63.1	23 12 26.5	. .	+ 27.4	74 19 15.1	+11.4
19	342 34	4.2	0.2	27.8	21.4	32	. .	700	. .	700	. .	63.1	17 21 11.2	. .	+ 19.9	68 27 52.3	+ 9.1
20																	
21	312 42	8.7	3.6	1.9	27.5	33	. .	. .	. .	638	640	63.1	47 13 29.9	. .	+ 1 8.8	98 20 59.9	+ 0.7
22	342 52	8.8	5.9	3.4	26.2	34	. .	334	. .	330	. .	63.1	17 3 41.5	. .	+ 19.6	68 10 19.3	+ 7.5
23	344 18	5.2	1.9	28.0	23.3	32	. .	. .	. .	762	775	63.1	15 37 13.5	. .	+ 17.7	66 43 49.4	+ 4.2
24	343 58	0.4	27.6	24.4	18.5	32	. .	805	. .	815	. .	63.1	15 57 9.7	. .	+ 18.0	67 3 48.9	+ 3.4
25	340 14	2.2	29.5	27.0	20.9	33	. .	426	. .	428	. .	63.1	19 41 21.4	. .	+ 22.6	70 48 5.2	+ 3.1
26																	
27	344 46	4.7	1.9	29.0	23.0	38	138	140	. .	. .	. .	61.2	15 10 34.3	. .	+ 16.5	66 17 12.0	+15.9
28	345 6	13.6	10.9	7.1	1.7	32	. .	. .	. .	636	616	61.2	14 49 18.2	. .	+ 16.0	65 55 55.4	+15.9
29	344 46	5.0	2.4	28.9	22.0	38	. .	502	. .	458	. .	61.2	15 10 39.3	. .	+ 16.5	66 17 17.0	− 0.8
30	336 22	1.4	28.5	25.5	18.5	36	. .	260	. .	250	. .	61.2	23 34 1.5	. .	+ 26.7	74 40 49.4	+ 1.2
31	342 58	1.5	27.5	23.8	18.8	39	430	425	. .	. .	. .	61.2	16 58 49.9	. .	+ 18.7	68 5 29.8	+12.6
32	338 40	6.1	2.6	29.9	24.8	32	. .	. .	230	210	. .	61.2	21 15 4.3	. .	+ 23.8	72 21 49.3	+11.9
33	336 22	5.1	1.4	27.3	22.5	33	. .	. .	. .	940	910	61.2	23 33 28.8	. .	+ 26.7	74 40 16.7	+11.5
34	337 8	3.9	29.7	27.5	19.7	38	960	980	. .	. .	. .	61.2	22 48 45.1	. .	+ 25.8	73 55 32.1	+11.7
35	336 56	8.2	4.7	1.3	24.9	38	865	880	. .	. .	. .	61.2	22 58 13.0	. .	+ 26.0	74 5 0.2	+11.3
36	336 56	8.2	4.7	1.3	24.9	39	. .	250	. .	260	. .	61.2	23 0 53.9	. .	+ 26.0	74 7 41.1	+11.3
37	337 18	8.2	4.3	2.1	26.0	35	. .	960	. .	972	. .	61.2	22 38 3.7	1033	+ 25.6	73 44 50.5	+ 1.4
38	336 16	6.2	2.6	1.4	22.7	34	. .	490	. .	420	. .	61.2	23 39 38.6	. .	+ 27.1	74 46 26.9	+ 1.2
39	341 18	7.8	4.6	2.3	24.7	36	. .	. .	. .	635	. .	61.2	18 38 13.7	. .	+ 20.8	69 44 55.7	+ 9.0
40	343 58	7.0	4.5	2.0	23.5	32	. .	600	. .	550	. .	61.2	15 57 10.8	. .	+ 17.7	67 3 49.7	+ 3.4
41	340 14	5.2	3.3	0.3	23.2	33	. .	360	. .	370	. .	61.2	19 41 21.6	. .	+ 22.2	70 48 5.0	+ 3.1
42	54 24	3.3	1.5	29.7	22.0	33	800	. .	. .	. .	870	61.2	305 31 27.2	1060	− 1 26.6	356 36 21.8	+ 0.4
43	345 28	3.3	0.4	28.3	22.6	31	. .	. .	. .	854	896	62.7	14 26 58.6	. .	+ 16.7	65 33 36.4	+16.0
44																	
45	343 34	4.1	0.3	27.6	22.0	35	302	260	. .	. .	. .	62.7	16 21 50.8	. .	+ 18.9	67 28 30.9	+12.7
46	343 46	7.6	4.4	2.2	25.4	38	. .	. .	. .	709	679	62.7	16 10 47.0	. .	+ 18.7	67 17 26.9	+12.6
47	337 18	0.4	26.5	24.0	19.4	36	. .	. .	. .	200	218	62.7	22 38 1.4	. .	+ 26.9	73 44 49.5	+ 0.4
48	338 54	4.6	1.2	28.5	22.4	36	. .	350	. .	330	. .	62.7	21 2 7.6	. .	+ 24.9	72 8 53.7	+ 7.2
49	328 26	9.5	4.3	3.2	27.5	35	. .	. .	. .	757	794	62.7	31 30 3.2	. .	+ 39.7	82 37 4.1	+ 0.3
50	340 52	4.5	0.6	28.1	23.1	36	. .	666	. .	678	. .	62.7	19 4 12.6	. .	+ 22.4	70 10 56.2	+ 3.3
51	343 36	8.1	5.0	1.9	27.4	38	. .	. .	. .	612	658	62.7	16 20 46.7	. .	+ 19.0	67 27 26.9	+ 3.2
52																	

No.	Barom.	At. Ther.	Ex. Ther.
	in.	°	°
2	30.19	39.0	46.0
7	30.17	44.0	48.3
11	30.17	44.0	49.2
14	30.215	14.5	9.2
22	30.17	16.0	10.5
26	30.13	17.0	14.4
37	30.10	30.0	27.0
42	30.14	27.0	23.0
43	30.41	13.0	7.0
46	. .	. .	6.5
48	. .	. .	6.0
49	. .	. .	6.0

For summary of the elements of reduction see page 3.

No.	Parallax.	Semi-diam.	Defective Illumination.	Sum.
	′ ″	′ ″	′ ″	′ ″
1	− 7.9	+ 16 16.8	. .	+ 16 8.8
2	− 7.9	− 16 16.8	. .	− 16 24.8
9	− 6.5	+ 7.8	− 0.1	+ 1.2
10	− 6.5	− 7.8	. .	− 14.3

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OBSERVATIONS

WITH THE

MURAL CIRCLE.

1872.

21——72

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
1872.						° ′ ″	″	″	″	″	″	″	r.	r.	r.
Jan. 2	1	Polaris		3	I–5.	330 15 3.9	4.1	11.7	9.5	8.8	5.7	7.28	26.871	−0.440	26.425
	2	η Piscium		3	III–VII.	44 15 2.2	4.4	7.9	8.6	6.9	3.1	5.52	36.130	. .	35.688
	3	Nadir		.	. .	200 0 1.8	4.8	7.9	9.8	5.6	4.1	5.67	30.476	. .	. .
5	4	Polaris		3	I–5.	330 15 4.1	3.2	11.1	7.4	9.8	5.0	6.77	26.887	−0.415	26.466
	5	38 Cassiopeæ		3	V–VII.	349 20 2.6	2.2	9.7	7.1	7.1	2.1	5.13	34.933	. .	34.498
	6	ο Piscium		3	IV–VI.	50 25 3.9	3.4	9.7	6.9	8.8	5.6	6.38	35.724	. .	35.309
	7	50 Cassiopeæ		3	IV–VI.	347 5 3.1	1.8	10.6	7.0	8.1	3.6	5.70	28.597	. .	28.173
	8	α Draconis, S. P.		3	IV–VI.	303 55 4.9	3.0	10.2	7.9	10.2	3.9	6.68	27.510	. .	27.101
	9	Weisse 186		2	III, VII.	70 5 3.9	6.1	9.8	9.8	10.2	5.4	7.53	30.497	. .	30.085
	10	5 Ursæ Minoris, S. P.		3	IV–VI.	315 10 2.2	0.8	8.1	5.0	7.8	1.9	4.30	27.815	. .	27.412
	11	β Ursæ Minoris, S. P.		3	IV–VI.	313 35 2.8	0.2	7.5	4.1	6.2	1.1	3.65	27.849	. .	27.445
	12	48 Cephei		3	IV–VI.	341 40 1.7	0.9	8.2	5.9	5.7	59.7	3.68	33.225	. .	32.797
	13	γ^2 Ursæ Minoris, S. P.		3	IV–VI.	311 15 0.8	0.4	5.9	3.4	4.8	58.9	2.37	33.662	. .	33.256
	14	Pleiad.	8.5	3	III–VII.	35 10 1.7	2.3	7.4	7.1	4.4	1.3	4.03	31.501	. .	31.082
	15	Pleiad.	7.0	3	III–VII.	" " "	"	"	"	"	"	"	33.016	. .	32.597
	16	ζ Ursæ Minoris, S. P.		3	IV–VI.	317 5 1.9	0.5	7.0	5.4	4.6	1.1	3.42	27.456	. .	27.055
	17	Groom. 2320, S. P.		3	IV–VI.	307 5 3.8	3.4	9.1	7.2	7.2	2.8	5.58	29.622	. .	29.214
	18	η Draconis, S. P.		3	IV–VI.	300 45 2.9	2.2	8.7	6.4	6.1	1.1	4.57	27.126	. .	26.716
	19	Anon. $4^h\ 32^m\ 43^s$.	9.5	2	VII, IX.	25 25 1.8	3.7	8.2	8.2	5.2	1.2	4.72	34.533	. .	34.095
	20	Nadir		.	. .	200 0 1.2	3.8	6.8	8.8	4.8	2.6	4.67	30.422	. .	. .
9	21	38 Cassiopeæ		3	IV–VI.	349 20 1.1	2.3	8.4	7.2	7.3	0.9	4.53	34.903	−0.396	34.499
	22	B. A. C. 494		3	I–5.	332 35 1.8	1.9	8.9	6.8	7.1	1.1	4.60	27.542	. .	27.144
	23	ε Cassiopeæ		3	IV–VI.	355 50 3.2	5.8	10.2	8.1	8.8	3.1	6.53	27.585	. .	27.183
	24	50 Cassiopeæ		3	IV–VI.	347 5 1.9	2.4	8.0	7.0	7.4	3.2	4.98	28.552	. .	28.147
	25	α Draconis, S. P.		3	IV–VI.	303 55 1.6	58.9	7.1	4.9	6.4	0.0	3.15	27.381	. .	26.991
	26	Anon. $2^h\ 13^m\ 9^s$.	9.0	3	III–VII.	70 5 1.6	2.9	7.7	7.7	7.2	2.8	4.98	30.404	. .	30.010
	27	ι Cassiopeæ		3	V–VII.	352 5 1.2	2.5	8.1	6.9	6.2	1.1	4.33	31.589	. .	31.178
	28	5 Ursæ Minoris, S. P.		3	IV–VI.	315 10 4.1	2.2	9.0	7.2	8.3	3.9	5.78	27.840	. .	27.456
	29	β Ursæ Minoris, S. P.		3	IV–VI.	313 35 3.4	2.8	9.0	6.8	8.2	3.0	5.53	27.865	. .	27.480
	30	48 Cephei		3	IV–VI.	341 35 1.1	3.4	8.2	7.5	7.4	0.2	4.63	23.666	. .	23.257
	31	γ^2 Ursæ Minoris, S. P.		2	IV, VI.	311 15 2.5	2.2	7.1	6.2	6.2	0.0	4.03	33.699	. .	33.317
	32	B. A. C. 1061.		1	5.	332 40 5.6	6.8	14.1	12.4	11.4	4.9	9.20	30.199	. .	29.800
	33	Nadir		.	. .	200 0 2.5	4.4	7.2	9.8	6.2	3.1	5.53	30.430	. .	. .
12	34	50 Cassiopeæ		3	IV–VI.	347 5 0.7	58.7	5.7	1.0	7.5	2.7	2.72	28.554	−0.428	28.117
	35	α Draconis, S. P.		3	IV–VI.	303 55 1.8	59.4	6.2	0.8	9.1	2.0	3.22	27.602	. .	27.180
	36	ι Cassiopeæ		3	IV–VI.	352 5 2.2	3.1	7.9	3.1	9.8	3.7	4.97	31.666	. .	31.231
	37	5 Ursæ Minoris, S. P.		3	IV–VI.	315 10 2.2	0.5	5.8	1.0	9.7	3.9	3.85	27.954	. .	27.538
	38	B. A. C. 814		3	V–VII.	351 35 2.7	4.7	9.0	5.3	11.2	4.7	6.27	26.343	. .	25.899
	39	β Ursæ Minoris, S. P.		3	IV–VI.	313 35 2.9	1.1	6.8	1.0	9.6	3.7	4.18	27.980	. .	27.563
	40	B. A. C. 960		3	I–5.	334 25 2.6	2.2	7.3	3.1	9.5	4.1	4.80	26.117	. .	25.688
	41	γ^2 Ursæ Minoris, S. P.		3	IV–VI.	311 15 3.6	2.8	7.1	2.6	9.6	3.4	4.85	33.917	. .	33.498
	42	γ Camelopardi.		3	IV–VI.	348 0 1.1	0.5	7.0	2.0	7.3	4.0	3.65	34.396	. .	33.960
	43	Radcliffe 1084	8.3	3	III–VII.	18 30 1.5	1.8	6.0	3.1	7.8	3.3	3.92	32.516	. .	32.080
	44	ζ Ursæ Minoris, S. P.		3	V, V½, VI.	317 5 3.8	1.4	6.1	2.3	7.8	3.9	4.22	27.621	. .	27.202
	45	B. A. C. 1247.	6.0	3	I–5.	335 25 2.2	1.3	6.2	3.0	7.5	3.3	3.92	30.323	. .	29.894
	46	Groom. 2320, S. P.		3	IV–VI.	307 5 1.9	59.2	5.1	1.2	7.0	2.1	2.75	29.749	. .	29.328
	47	η Draconis, S. P.		3	IV–VI.	300 45 4.4	1.7	7.8	3.3	8.3	3.9	4.90	27.337	. .	26.914
	48	Anon. $4^h\ 32^m\ 45^s$.	9.3	3	III–VII.	25 25 2.7	1.4	5.1	2.9	6.0	3.6	3.62	34.505	. .	34.071
	49	α Camelopardi.		3	IV–VI.	352 45 3.2	2.1	7.8	4.0	7.5	3.9	4.75	27.337	. .	26.902
	50	ε Ursæ Minoris, S. P.		3	I–5.	321 10 3.7	1.6	8.8	4.0	8.2	3.8	5.02	31.175	. .	30.749
	51	Nadir		.	. .	200 0 1.0	1.4	4.4	3.5	6.2	4.1	3.43	30.391	. .	. .
22	52	Pleiad. $3^h\ 37^m\ 59^s$		1	V.	35 0 1.1	1.4	5.4	4.5	4.9	0.4	2.95	35.581	−0.423	35.158
	53	Pleiad. $3^h\ 38^m\ 50^s$		1	V.	" " "	"	"	"	"	"	"	26.564	. .	26.141
	54	Pleiad. $3^h\ 39^m\ 50^s$		1	V.	" " "	"	"	"	"	"	"	30.670	. .	30.247
	55	Pleiad. $3^h\ 40^m\ 40^s$		1	V.	" " "	"	"	"	"	"	"	34.408	. .	33.985
	56	Pleiad. $3^h\ 42^m\ 18^s$		1	V.	" " "	"	"	"	"	"	"	38.432	. .	38.009
	57	Groom. 2320, S. P.		3	IV–VI.	307 5 3.2	2.8	7.8	6.0	7.3	2.7	4.97	29.773	. .	29.357
	58	B. A. C. 1300.		3	IV–VI.	354 5 0.8	3.8	8.2	6.4	7.8	2.2	4.87	31.668	. .	31.239
	59	η Draconis, S. P.		3	IV–VI.	300 45 3.2	3.0	8.8	6.4	6.8	2.0	5.03	27.282	. .	26.864
	60	A Draconis, S. P.		3	IV–VI.	308 0 1.8	0.2	7.0	4.0	5.2	1.1	3.22	32.236	. .	31.821
	61	B. A. C. 1448.		2	V, VI.	337 55 1.0	59.3	6.7	3.9	3.1	58.9	2.15	28.854	. .	28.417
	62	α Camelopardi.		3	IV–VI.	352 45 3.7	5.2	10.8	8.6	7.7	3.3	6.55	27.448	. .	27.018
	63	ε Ursæ Minoris, S. P.		3	I–5.	321 10 2.2	2.8	9.7	7.6	6.4	1.6	5.05	31.189	. .	30.768
	64	Nadir		.	. .	200 0 1.0	2.3	5.7	7.2	4.1	3.0	3.88	30.404	−0.423	. .

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	30.370	41.4	33.8	+ 1 51.9	N. 49 43 0.8	1 11.9	+ 88 37 51.5	— 14.4	Y.	
2	30.374	41.2	33.8	— 2 58.0	S. 24 12 7.5	27.4	+ 14 41 3.8	+ 2.2	Y.	
3	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
4	29.978	45.0	37.5	+ 1 50.6	N. 49 43 2.6	1 10.4	+ 88 37 51.8	— 14.7	Y.	
5	. .	. .	. .	— 2 20.8	N. 30 42 15.7	35.5	+ 69 36 30.0	— 12.9	Y.	
6	29.980	44.2	36.3	— 2 46.1	S. 30 22 20.3	35.1	+ 8 30 43.5	+ 4.2	Y.	
7	29.978	43.3	35.4	+ 0 57.2	N. 32 53 57.1	38.8	+ 71 48 14.7	— 13.2	Y.	
8	29.984	43.1	35.1	+ 1 30.7	N. 76 3 22.6	3 57.6	+ 64 59 1.0	+ 13.8	Y.	
9	. .	. .	. .	— 0 2.7	S. 50 5 4.9	1 11.7	— 11 12 37.8	+ 10.3	Y.	
10	29.980	42.2	34.2	+ 1 21.0	N. 64 48 34.7	2 7.3	+ 76 15 39.2	+ 14.5	Y.	
11	29.978	41.5	33.4	+ 1 19.9	66 23 36.4	2 17.1	+ 74 40 27.7	+ 14.1	Y.	
12	29.976	41.0	33.4	— 1 27.5	38 21 23.8	47.7	+ 77 15 50.3	— 12.8	Y.	
13	29.976	40.8	33.8	— 1 41.9	N. 68 46 39.5	2 33.9	+ 72 17 7.8	+ 13.2	Y.	
14	. .	. .	. .	— 0 33.8	S. 15 9 30.2	16.4	+ 23 43 52.3	— 1.6	Y.	
15	. .	. .	. .	— 1 21.2	S. 15 8 42.8	16.3	+ 23 44 39.7	— 1.6	Y.	
16	29.972	40.2	33.2	+ 1 32.2	N. 62 53 24.4	1 57.3	+ 78 11 0.0	+ 12.5	Y.	
17	29.972	40.0	33.3	+ 24.6	72 54 29.8	3 13.7	+ 68 8 37.6	+ 11.6	Y.	
18	29.970	39.8	33.5	+ 1 42.8	N. 79 13 12.7	5 7.3	+ 61 48 1.3	+ 10.6	Y.	
19	. .	. .	. .	— 2 8.1	S. 5 22 56.6	5.7	+ 33 30 36.5	— 3.6	Y.	Faint.
20	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
21	30.180	41.7	34.2	— 2 20.8	N. 30 42 16.2	36.0	+ 69 36 31.0	— 12.9	Y.	
22	30.170	41.3	33.5	+ 1 29.4	47 23 26.0	1 5.8	+ 86 18 10.7	— 15.0	Y.	Faint.
23	30.168	41.0	33.3	+ 1 28.2	24 8 25.3	27.2	+ 63 2 31.3	— 11.9	Y.	
24	30.166	40.8	32.9	+ 0 58.0	32 53 57.0	39.3	+ 71 48 15.1	— 13.4	Y.	
25	30.166	40.2	32.7	+ 1 34.2	N. 76 3 22.7	4 0.3	+ 64 58 58.2	+ 14.6	Y.	
26	. .	. .	. .	— 0 0.3	S. 50 5 4.7	1 12.5	— 11 12 38.4	+ 10.7	Y.	A fainter star, 14^s preceding, to southward.
27	30.168	39.8	32.0	— 0 36.8	N. 27 55 32.5	32.2	+ 66 49 43.9	— 12.6	Y.	
28	30.172	39.5	31.7	— 1 19.6	64 48 34.6	2 8.7	+ 76 15 37.8	+ 15.3	Y.	
29	30.172	38.7	30.4	+ 1 18.9	66 23 35.6	2 18.8	+ 74 40 26.8	+ 14.9	Y.	
30	30.170	38.2	30.6	+ 3 31.0	38 21 24.4	48.2	+ 77 15 51.4	— 13.5	Y.	
31	30.168	37.7	30.1	— 1 43.8	68 46 39.8	2 36.1	+ 72 17 5.3	+ 14.2	Y.	
32	. .	. .	29.9	+ 0 6.3	47 19 44.5	1 6.1	+ 86 14 29.5	— 14.0	Y.	
33	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
34	29.940	48.2	43.2	+ 58.9	32 53 58.4	38.1	+ 71 48 15.3	— 13.5	Y.	
35	29.942	48.2	43.0	+ 1 28.2	76 3 28.5	3 53.3	+ 64 58 59.3	+ 15.0	Y.	
36	29.942	48.3	42.7	— 38.5	27 55 33.5	31.3	+ 66 49 43.6	— 12.7	Y.	
37	29.934	48.0	42.4	+ 1 17.0	64 48 39.1	2 4.9	+ 76 15 37.2	+ 15.7	Y.	
38	. .	. .	42.2	+ 2 8.3	28 22 45.4	31.9	+ 67 16 56.1	— 12.8	Y.	
39	29.932	48.0	42.0	+ 1 16.2	66 23 39.6	2 14.4	+ 74 40 27.2	+ 15.4	Y.	
40	29.930	47.8	41.9	+ 2 14.9	45 32 40.3	1 0.2	+ 84 27 19.3	— 14.8	Y.	
41	. .	. .	. .	— 1 49.4	68 46 44.6	2 31.3	+ 72 17 5.3	+ 14.9	Y.	
42	. .	. .	40.3	— 2 3.9	32 2 0.2	37.1	+ 70 56 16.1	— 12.5	Y.	
43	. .	. .	. .	— 1 5.1	1 31 1.1	1.6	+ 40 24 41.5	— 6.1	Y.	
44	29.920	47.2	40.0	+ 1 27.6	62 53 28.2	1 55.4	+ 78 10 57.6	+ 14.4	Y.	
45	29.912	47.0	39.8	+ 0 3.3	44 34 52.8	58.4	+ 83 29 30.0	— 13.4	Y.	
46	29.910	46.8	39.6	+ 0 21.0	72 54 36.2	3 10.8	+ 68 8 34.2	+ 13.7	Y.	
47	. .	. .	39.1	+ 1 36.5	N. 79 13 18.5	5 2.9	+ 61 47 59.8	+ 12.8	Y.	
48	. .	. .	. .	— 2 7.4	S. 5 22 56.2	5.6	+ 33 30 37.0	— 4.0	Y.	
49	29.900	46.2	38.8	+ 1 36.9	N. 27 13 18.3	30.6	+ 66 7 27.7	— 9.9	Y.	
50	29.890	46.0	38.6	— 23.4	N. 58 50 18.4	1 38.0	+ 82 14 24.8	+ 11.9	Y.	
51	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
52	. .	. .	. .	— 2 41.4	S. 14 57 21.5	15.9	+ 23 56 1.4	— 1.8	Y.	
53	. .	. .	. .	+ 2 0.7	15 2 3.7	16.0	+ 23 51 19.1	— 1.8	Y.	
54	. .	. .	. .	— 0 7.7	14 59 55.2	16.0	+ 23 53 27.6	— 1.8	Y.	
55	. .	. .	. .	— 2 4.7	14 57 58.3	15.9	+ 23 55 24.6	— 1.8	Y.	
56	29.756	43.0	35.3	— 4 10.6	S. 14 55 52.3	15.9	+ 23 57 30.6	— 1.8	Y.	
57	. .	. .	. .	+ 0 20.1	N. 72 54 34.9	3 12.0	+ 68 8 34.3	+ 16.3	Y.	
58	29.750	42.0	34.0	— 0 38.8	25 55 33.9	29.0	+ 64 49 41.7	— 12.6	Y.	
59	29.744	41.0	34.0	+ 1 38.1	79 13 16.9	5 4.6	+ 61 47 59.7	+ 15.8	Y.	
60	29.740	41.0	33.8	— 0 57.0	72 0 53.8	3 2.1	+ 69 2 25.3	+ 16.0	Y.	
61	. .	. .	. .	+ 0 49.5	42 4 8.3	53.9	+ 80 58 41.0	— 14.4	Y.	
62	29.742	40.5	33.7	+ 1 33.3	27 13 20.2	30.7	+ 66 7 29.7	— 12.0	Y.	
63	29.740	40.2	33.2	— 0 24.0	N. 58 50 19.0	1 38.6	+ 82 14 23.6	+ 14.9	Y.	
64	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						°	′	″	″	″	″	″	″	″	r.	r.	r.
1872.																	
Jan. 22	1	ω Draconis, S. P. . .	. .	3	IV–VI.	307	45	3.3	4.8	8.5	7.9	8.0	3.4	5.98	29.629	—0.423	29.214
	2	χ^1 Draconis, S. P. . .	. .	3	IV–VI.	311	5	1.6	1.3	6.4	4.8	4.6	59.5	3.03	23.518	. .	23.104
	3	22 Camelopardi. . .	. .	3	IV–VI.	349	30	3.0	4.9	12.2	10.7	8.2	3.1	7.02	25.973	. .	25.542
	4	Moon, N.	. .	3	IV–VI.	34	15	4.5	6.4	11.8	12.2	8.4	5.6	8.15	25.072	. .	24.648
25	5	ι Cassiopeæ . . .	. .	3	IV–VI.	352	5	3.8	5.4	12.1	10.4	9.5	3.0	7.37	31.739	—0.415	31.317
	6	5 Ursæ Minoris, S. P. .	. .	3	IV–VI.	315	10	1.3	0.4	7.1	4.1	6.5	0.1	3.25	27.845	. .	27.442
	7	B. A. C. 814 . . .	7.3	3	IV–VI.	351	35	1.9	5.2	10.2	9.1	8.2	1.7	6.05	26.320	. .	25.898
	8	β Ursæ Minoris, S. P. .	. .	3	V, V½, VI.	313	35	2.7	1.4	9.0	6.1	7.1	0.5	4.47	27.920	. .	27.512
	9	B. A. C. 960 . . .	7.0	3	1–5.	334	25	5.5	5.1	10.7	9.9	9.2	2.9	7.22	26.166	. .	25.750
	10	γ^2 Ursæ Majoris, S. P. .	. .	3	IV–VI.	311	15	2.6	2.3	7.8	7.1	5.7	59.0	4.08	33.832	. .	33.426
	11	B. A. C. 1061. . .	. .	3	1–5.	332	40	1.0	0.7	7.5	7.5	5.7	59.0	3.57	30.147	. .	29.730
	12	γ Camelopardi. . .	. .	3	IV–VI.	348	0	1.1	2.1	9.6	8.2	4.5	0.1	4.27	34.466	. .	34.043
	13	Radcliffe 1084 . .	. .	3	III–VII.	18	30	3.2	4.9	8.5	10.7	6.2	0.9	5.73	32.551	. .	32.128
	14	B. A. C. 5352, S. P. .	. .	3	1–5.	322	15	3.1	4.1	10.1	10.7	7.2	2.0	6.20	31.040	. .	30.626
	15	Groom. 2320, S. P. .	6.0	3	IV–VI.	307	5	4.7	4.4	10.7	10.0	7.8	2.0	6.60	29.744	. .	29.336
	16	γ Tauri	. .	3	III–VII.	43	35	2.7	3.8	7.9	9.8	4.6	1.6	5.07	32.106	. .	31.688
	17	η Ursæ Minoris, S. P. .	. .	3	IV–VI.	314	55	3.9	2.2	9.4	8.8	6.3	0.7	5.22	23.860	. .	23.457
	18	A Draconis, S. P. . .	. .	3	IV–VI.	308	0	1.8	3.3	8.1	7.2	5.4	0.2	4.33	32.137	. .	31.730
	19	B. A. C. 1448. . .	. .	3	1–5.	337	55	1.9	2.8	9.7	8.9	3.7	58.9	4.32	28.877	. .	28.461
	20	α Camelopardi. . .	. .	3	IV–VI.	352	45	1.4	5.2	8.8	9.8	4.5	59.2	4.82	27.382	. .	26.960
	21	B. A. C. 1751. . .	. .	3	IV–VI.	353	15	2.4	5.8	10.2	11.9	5.8	0.9	6.17	27.692	. .	27.270
	22	ω Draconis, S. P. . .	. .	2	V, VI.	307	45	3.2	5.8	10.2	11.9	5.7	1.9	6.45	29.562	. .	29.153
	23	χ^1 Draconis, S. P. . .	. .	2	V, VI.	311	10	5.5	6.2	11.3	13.1	7.3	2.7	7.68	33.218	. .	32.810
	24	35 Draconis, S. P. . .	. .	3	IV–VI.	315	55	2.1	3.1	8.2	10.1	4.6	1.9	5.00	32.135	. .	31.733
	25	22 Camelopardi. . .	. .	3	IV–VI.	349	30	2.1	4.2	9.7	13.0	4.2	0.1	5.55	25.890	. .	25.467
	26	δ Ursæ Minoris, S. P. .	. .	3	1–5.	325	30	3.2	5.2	10.6	11.8	5.9	1.2	6.32	28.183	. .	27.770
	27	B. A. C. 2069. . .	. .	3	1–5.	340	45	5.2	8.6	11.8	16.4	7.8	3.3	8.85	23.307	. .	22.891
	28	51 Cephei	. .	3	1–5.	331	40	3.5	5.7	10.2	12.9	6.6	2.0	6.82	29.943	. .	29.525
	29	Nadir	. .	.	. .	200	0	2.3	6.2	8.8	14.2	4.1	1.7	6.22	30.472	. .	. .
29	30	B. A. C. 896 . . .	. .	3	1–5.	340	0	2.4	1.1	9.8	7.4	6.6	1.6	4.82	31.114	—0.440	30.703
	31	B. A. C. 960 . . .	. .	3	1–5.	334	25	1.9	1.2	7.1	6.0	5.6	0.8	3.77	25.988	. .	25.547
	32	γ^2 Ursæ Minoris, S. P. .	. .	3	IV–VI.	311	15	3.7	4.7	8.9	8.7	7.8	1.7	5.92	33.730	. .	33.299
	33	Anon. $3^h\ 27^m\ 44^s$.	8.5	3	IV–VI.	12	5	1.1	3.3	6.8	8.0	3.2	0.0	3.73	33.214	. .	32.771
	34	Anon. $3^h\ 28^m\ 4^s$ . .	8.0	3	I–IX.	"	"	"	"	"	"	"	"	"	33.321	. .	32.829
	35	Weisse (2) 776 . .	8.0	3	III–VII.	13	55	4.3	7.8	9.9	10.9	8.2	3.2	7.38	27.469	. .	27.019
	36	Weisse (2) 847 . .	8.0	3	III–VII.	"	"	"	"	"	"	"	"	"	28.319	. .	27.869
	37	ζ Ursæ Minoris, S. P. .	. .	3	IV–VI.	317	5	1.8	0.9	5.1	7.0	2.8	59.2	2.80	27.424	. .	26.998
	38	Weisse (2) 1251 . .	8.0	3	IV–VI.	17	45	3.5	6.7	9.2	11.9	5.5	1.3	6.35	30.972	. .	30.529
	39	Weisse (2) 1269 . .	7.5	3	V–IX.	"	"	"	"	"	"	"	"	"	32.639	. .	32.181
	40	B. A. C. 1300. . .	6.0	3	IV–VI.	354	5	2.9	6.2	10.7	13.2	7.4	2.1	7.08	31.755	. .	31.309
	41	Weisse (2) 333 . .	8.5	3	III–VII.	21	55	4.0	6.2	8.9	13.5	6.5	3.0	7.02	30.888	. .	30.441
	42	A Draconis, S. P. . .	. .	3	IV–VI.	308	0	3.4	6.4	9.4	11.8	5.9	2.2	6.52	32.033	. .	31.601
	43	B. A. C. 1448. . .	. .	2	1, 5.	337	55	4.4	6.6	10.8	13.4	6.7	2.1	7.33	28.976	. .	28.535
	44	ε Ursæ Minoris, S. P. .	. .	3	1–5.	321	10	3.3	16.6	11.8	12.8	6.2	1.2	8.65	31.148	. .	30.709
	45	B. A. C. 1619. . .	. .	3	IV–VI.	341	5	4.4	8.8	12.6	17.9	7.5	2.9	9.02	34.435	. .	33.981
	46	B. A. C. 5887, S. P. .	. .	3	IV–VI.	310	50	2.8	5.9	9.4	11.2	5.2	0.3	5.80	27.617	. .	27.186
30	47	B. A. C. 814 . . .	7.5	3	IV–VI.	351	35	4.9	7.2	11.7	12.2	11.2	3.3	8.42	26.342	—0.427	25.908
	48	β Ursæ Minoris, S. P. .	. .	3	IV½–V½.	313	35	1.9	1.8	7.1	6.1	7.5	59.3	3.95	27.703	. .	27.339
	49	48 Cephei	. .	3	IV–VI.	341	40	3.1	5.8	9.5	10.3	9.1	59.8	6.27	33.353	. .	32.913
	50	γ^2 Ursæ Minoris, S. P. .	. .	3	IV–VI.	311	15	0.3	1.9	5.2	4.8	4.1	56.4	2.12	33.552	. .	33.134
	51	Anon. $3^h\ 27^m\ 40^s$.	8.5	2	V, VII.	12	5	1.8	4.1	7.3	9.7	4.4	58.9	4.37	33.264	. .	32.828
	52	Anon. $3^h\ 28^m\ 0^s$ . .	8.0	2	II, VIII.	"	"	"	"	"	"	"	"	"	33.294	. .	32.835
	53	Weisse (2) 776 . .	8.0	3	III–VII.	13	55	0.0	3.1	4.8	7.2	2.1	57.1	2.38	27.306	. .	26.869
	54	Weisse (2) 847 . .	. .	3	III–VII.	"	"	"	"	"	"	"	"	"	28.193	. .	27.756
	55	ζ Ursæ Minoris, S. P. .	. .	3	IV–VI.	317	5	3.7	4.2	8.0	9.2	4.8	0.8	5.12	27.454	. .	27.041
	56	Weisse (2) 1251 . .	8.0	3	II–IV.	17	45	3.4	6.8	9.8	13.1	6.4	1.1	6.77	31.050	. .	30.610
	57	Weisse (2) 1269 . .	7.5	3	IV–VI.	"	"	"	"	"	"	"	"	"	32.739	. .	32.309
	58	B. A. C. 1300. . .	. .	3	IV–VI.	354	5	3.9	5.4	9.9	13.4	7.6	1.2	6.90	31.690	. .	31.257
	59	Anon. $4^h\ 24^m\ 10^s$.	10.0	1	V.	23	15	1.2	3.8	5.7	9.5	3.1	58.2	3.58	32.297	. .	31.870
	60	B. A. C. 1448 . . .	. .	3	1–5.	337	55	2.3	5.7	8.1	11.2	4.7	58.4	5.07	28.897	. .	28.469
	61	α Camelopardi. . .	. .	3	IV–VI.	352	45	4.1	9.3	10.7	15.2	7.2	1.6	8.02	27.485	. .	27.051
	62	ε Ursæ Minoris, S. P. .	. .	3	1–5.	321	10	3.2	8.1	10.0	13.0	7.7	0.6	7.10	31.112	. .	30.686
	63	B. A. C. 1619 . .	7.5	3	IV–VI.	341	5	1.2	7.3	7.9	14.2	5.2	59.2	5.83	34.285	. .	33.844
	64	B. A. C. 5887, S. P. .	7.5	3	IV–VI.	310	50	3.0	8.4	10.1	13.3	7.7	0.0	7.08	27.538	. .	27.120
	65	Nadir	. .	.	. .	200	0	0.5	7.9	7.9	13.9	4.6	59.6	5.73	30.466	—0.427	. .

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	29.720	40.0	32.2	+ 0 24.6	N. 72 14 29.4	3 5.0	+ 68 48 46.8	+ 13.6	Y.	
2	29.720	40.0	32.0	+ 3 35.8	68 51 21.2	2 33.8	+ 72 12 26.3	+ 13.3	Y.	
3	29.712	39.8	31.4	+ 2 19.5	N. 30 27 33.5	35.3	+ 69 21 47.6	— 9.3	Y.	
4	29.704	39.2	31.4	+ 2 47.5	S. 14 17 55.6	1 50.7	+ 24 33 52.5	. .	Y.	
5	29.896	39.2	27.4	— 0 41.2	N. 27 55 33.9	32.2	+ 66 49 44.9	— 13.2	Y.	
6	29.886	38.5	27.0	+ 1 20.0	64 48 36.7	2 8.8	+ 76 15 35.7	+ 17.5	Y.	
7	29.882	38.2	26.8	+ 2 8.3	28 22 45.6	32.9	+ 67 16 57.3	— 13.6	Y.	
8	29.880	37.2	26.2	+ 1 17.8	66 23 37.7	2 18.7	+ 74 40 24.8	+ 17.7	Y.	
9	29.880	36.5	25.8	+ 2 13.0	45 32 39.8	1 2.1	+ 84 27 20.7	— 16.6	Y.	
10	. .	. .	25.8	— 1 47.2	68 46 43.1	2 36.0	+ 72 17 2.1	+ 17.7	Y.	
11	29.878	35.5	25.6	+ 0 8.5	47 19 48.0	1 6.1	+ 86 14 32.9	— 17.2	Y.	
12	29.884	35.0	24.5	— 2 6.5	32 2 2.2	38.3	+ 70 56 19.3	— 14.4	Y.	
13	. .	. .	. .	— 1 6.6	1 31 0.8	1.6	+ 40 24 41.3	— 6.9	Y.	
14	29.874	34.0	24.2	— 0 19.6	57 45 13.4	1 36.8	+ 83 19 31.0	— 16.1	Y.	
15	29.874	33.6	23.8	+ 0 20.8	N. 72 54 32.6	3 17.0	+ 68 8 31.6	+ 17.0	Y.	
16	. .	. .	. .	— 0 52.8	S. 23 34 12.3	26.7	+ 15 18 59.8	+ 0.7	Y.	
17	29.866	33.0	23.0	+ 3 24.9	N. 65 1 29.9	2 11.1	+ 76 2 40.3	+ 16.9	Y.	
18	29.870	32.8	23.2	— 0 54.1	72 0 49.8	3 7.0	+ 69 2 24.4	+ 16.7	Y.	
19	29.868	32.0	23.5	+ 0 48.2	42 4 7.5	55.3	+ 80 58 41.6	— 14.9	Y.	
20	29.864	32.0	23.7	+ 1 35.1	27 13 20.1	31.5	+ 66 7 30.4	— 12.4	Y.	
21	29.852	31.2	23.4	+ 1 25.4	26 43 28.4	30.8	+ 65 37 38.0	— 10.8	Y.	
22	29.864	31.0	23.2	+ 0 26.5	72 14 27.0	3 9.5	+ 68 48 44.7	+ 14.4	Y.	
23	29.860	30.8	23.4	— 1 27.9	68 51 20.2	2 37.4	+ 72 12 23.6	+ 14.1	Y.	
24	29.860	30.7	23.2	— 0 54.2	64 5 49.2	2 5.7	+ 76 58 26.3	+ 13.5	Y.	
25	29.860	30.4	23.4	+ 2 21.8	30 27 32.6	36.0	+ 69 21 47.5	— 9.9	Y.	
26	29.856	30.3	23.2	+ 1 9.8	54 28 43.9	1 25.7	+ 86 36 11.6	+ 11.7	Y.	
27	29.852	30.2	22.8	+ 3 42.4	39 11 8.7	50.0	+ 78 5 37.5	— 10.2	Y.	
28	29.860	30.0	22.0	+ 0 14.9	48 19 38.3	1 9.0	+ 87 14 26.1	— 9.7	Y.	
29	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
30	30.072	38.5	17.3	— 0 22.0	40 0 17.2	52.4	+ 78 54 48.4	— 16.0	Y.	
31	30.075	36.5	17.3	+ 2 19.3	45 32 36.9	1 3.6	+ 84 27 19.3	— 17.1	Y.	
32	30.064	34.0	16.8	— 1 43.2	68 46 37.3	2 40.0	+ 72 17 3.9	+ 18.3	Y.	
33	. .	. .	. .	— 1 26.7	7 56 23.0	8.7	+ 46 50 10.5	— 8.8	Y.	
34	. .	. .	. .	— 1 27.5	7 56 23.8	8.7	+ 46 50 11.3	— 8.8	Y.	
35	. .	. .	. .	+ 1 33.3	6 3 19.4	6.6	+ 44 57 4.8	— 8.3	Y.	
36	30.078	31.3	16.8	+ 1 6.7	6 3 46.0	6.7	+ 44 57 31.5	— 8.3	Y.	
37	30.082	30.5	16.4	+ 1 33.9	62 53 23.3	2 1.9	+ 78 40 56.0	+ 18.3	Y.	
38	. .	. .	. .	— 0 16.6	2 15 10.2	2.5	+ 41 8 51.5	— 7.2	Y.	
39	. .	. .	. .	— 1 8.2	2 16 1.9	2.5	+ 41 9 43.2	— 7.2	Y.	
40	30.090	29.2	15.7	— 0 41.0	N. 25 55 33.9	30.5	+ 64 49 43.2	— 13.3	Y.	
41	. .	. .	. .	— 0 13.8	S. 1 54 53.2	2.1	+ 36 58 43.5	— 5.9	Y.	
42	30.098	28.0	15.4	— 0 50.1	N. 72 0 43.6	3 11.6	+ 69 2 26.0	+ 17.5	Y.	
43	30.104	27.8	15.4	+ 0 45.8	42 4 6.8	56.7	+ 80 58 42.3	— 15.6	Y.	
44	30.100	27.0	15.0	— 0 22.2	58 50 13.5	1 43.7	+ 82 14 24.0	+ 16.4	Y.	
45	30.100	26.8	15.2	— 2 5.6	38 56 55.5	50.8	+ 77 51 25.1	— 12.9	Y.	
46	30.110	26.6	15.3	+ 1 28.0	69 8 26.2	2 43.8	+ 71 55 11.2	+ 16.4	Y.	
47	30.234	30.8	17.2	+ 2 8.0	28 22 43.6	34.0	+ 67 16 56.4	— 13.7	Y.	
48	30.230	29.2	16.6	+ 1 23.2	66 23 32.8	2 23.2	+ 74 40 25.2	+ 18.2	Y.	
49	30.222	28.0	16.1	— 1 31.1	38 21 24.9	49.8	+ 77 15 53.5	— 16.0	Y.	
50	30.218	27.0	15.3	— 1 38.0	68 46 35.9	2 41.4	+ 72 17 3.9	+ 18.4	Y.	
51	. .	. .	. .	— 1 28.5	7 56 24.1	8.8	+ 46 50 11.7	— 8.9	Y.	
52	. .	. .	. .	— 1 28.7	7 56 24.3	8.8	+ 46 50 11.9	— 8.9	Y.	
53	. .	. .	. .	+ 1 38.0	6 3 19.7	6.7	+ 44 57 5.2	— 8.4	Y.	
54	30.220	25.2	14.0	+ 1 10.2	6 3 47.4	6.7	+ 44 57 32.9	— 8.4	Y.	
55	30.220	24.3	13.6	+ 1 32.6	62 53 22.3	2 3.3	+ 78 10 55.6	+ 18.3	Y.	
56	. .	. .	. .	— 0 19.1	2 15 12.3	2.5	+ 41 8 53.6	— 7.2	Y.	
57	. .	. .	. .	— 1 12.2	2 16 5.5	2.5	+ 41 9 46.8	— 7.2	Y.	
58	30.228	23.7	13.3	— 0 39.3	N. 25 55 32.4	30.8	+ 64 49 42.0	— 13.4	Y.	
59	. .	. .	. .	— 0 58.5	S. 2 14 5.1	3.6	+ 35 39 30.1	— 5.5	Y.	Very faint.
60	30.218	22.2	12.5	+ 0 47.9	N. 42 4 7.0	57.3	+ 80 58 43.1	— 15.8	Y.	
61	30.222	22.0	12.3	+ 1 32.3	27 13 19.7	32.7	+ 66 7 31.2	— 13.1	Y.	
62	30.218	21.0	11.1	— 0 21.4	58 50 14.3	1 45.1	+ 82 14 21.8	+ 16.8	Y.	
63	30.216	20.3	11.0	— 2 0.3	38 56 54.4	51.5	+ 77 51 24.7	— 14.5	Y.	
64	30.216	20.0	10.8	+ 1 30.1	N. 69 8 22.8	2 46.1	+ 71 55 12.3	+ 16.7	Y.	Faint.
65	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
1872.						°	′	″	″	″	″	″	″	″	r.	r.	r.
Feb. 1	1	B. A. C. 960	. .	3	I–5.	334	25	0.4	1.2	6.6	4.3	6.8	58.9	3.03	26.023	−0.445	25.577
	2	γ^2 Ursæ Minoris, S.P.	. .	3	I–5.	311	15	2.6	1.8	7.0	4.5	7.6	59.1	3.77	33.699	. .	33.254
	3	Anon. $3^h\,27^m\,16^s$	9.2	3	III–VII.	12	5	3.5	6.4	10.4	8.9	11.1	2.6	7.15	34.376	. .	33.921
	4	Anon. $3^h\,27^m\,44^s$	8.5	2	II, IX.	"	"	"	"	"	"	"	"	"	33.336	. .	32.850
	5	Anon. $3^h\,28^m\,4^s$	8.0	3	IV–VI.	"	"	"	"	"	"	"	"	"	33.411	. .	32.963
	6	Weisse (2) 776	. .	3	III–VII.	13	55	1.9	5.2	7.8	6.8	8.3	0.2	5.03	27.398	. .	26.943
	7	Weisse (2) 847	7.5	3	III–VII.	"	"	"	"	"	"	"	"	"	28.249	. .	27.794
	8	ζ Ursæ Minoris, S.P.	. .	3	IV–VI.	317	5	1.4	59.6	6.9	2.4	5.6	58.7	2.43	27.505	. .	27.074
	9	Weisse (2) 1251	8.0	3	IV–VI.	17	45	1.5	2.7	7.7	6.0	5.9	58.8	3.77	30.883	. .	30.435
	10	Weisse (2) 1269	7.3	3	VI–VIII.	"	"	"	"	"	"	"	"	"	32.606	. .	32.145
	11	B. A. C. 1300	5.0	3	IV–VI.	354	5	3.8	5.1	9.9	8.2	10.2	1.1	6.38	31.743	. .	31.292
	12	Weisse (2) 333	8.5	3	III–VII.	21	55	2.1	3.6	6.7	7.2	7.2	0.3	4.52	30.777	. .	30.325
	13	A Draconis, S. P.	. .	3	IV–VI.	308	0	3.4	3.7	8.6	5.2	7.7	1.1	4.95	32.085	. .	31.648
	14	B. A. C. 1448	5.0	3	I–5.	337	55	3.6	3.4	9.0	6.8	8.5	0.6	5.32	28.954	. .	28.508
	15	α Camelopardi	4.5	3	IV–VI.	352	45	4.7	7.1	11.1	9.6	9.8	2.4	7.45	27.523	. .	27.071
	16	ε Ursæ Minoris, S. P.	. .	3	I–5.	321	10	3.0	3.2	10.8	7.7	8.8	1.0	5.75	31.153	. .	30.709
	17	B. A. C. 1619	. .	3	IV–VI.	341	5	3.4	4.8	10.0	10.2	8.7	0.9	6.33	34.402	. .	33.943
	18	B. A. C. 5887, S. P.	. .	3	IV–VI.	310	50	2.7	2.6	7.8	5.1	6.4	58.3	3.82	27.548	. .	27.112
	19	B. A. C. 1706	. .	3	IV–VI.	343	55	2.8	3.8	9.1	7.7	8.4	0.2	5.33	26.903	. .	26.447
	20	ω Draconis, S. P.	. .	3	IV–VI.	307	45	1.8	1.7	7.7	5.0	5.3	58.5	3.33	29.346	. .	28.909
	21	ψ^1 Draconis, S. P.	. .	3	IV–VI.	311	10	2.1	1.8	7.2	5.2	5.5	57.9	3.28	33.024	. .	32.588
	22	B. A. C. 1879	. .	3	I–5.	332	10	1.7	2.4	8.5	6.5	7.5	58.9	4.25	32.858	. .	32.412
	23	Nadir	. .	.	. .	200	0	0.0	2.8	4.9	7.8	3.8	59.0	3.05	30.398	. .	. .
19	24	η Ursæ Minoris, S. P.	. .	3	IV–VI.	315	0	1.3	0.5	7.9	3.2	8.1	1.1	3.68	33.687	−0.495	33.204
	25	A Draconis, S, P.	. .	3	IV–VI.	308	0	1.6	1.1	6.8	2.9	6.6	0.9	3.32	32.412	. .	31.925
	26	α Camelopardi	. .	3	IV–VI.	352	45	1.8	2.4	8.2	6.0	6.2	0.8	4.23	27.524	. .	27.022
	27	ε Ursæ Minoris, S. P.	. .	3	I–5.	321	10	3.2	2.3	10.8	6.2	7.5	1.8	5.30	31.437	. .	30.943
	28	B. A. C. 1619	7.3	3	IV–VI.	341	5	2.2	2.9	9.4	6.9	8.2	0.8	5.07	34.552	. .	34.043
	29	B. A. C. 5887, S. P.	. .	3	IV–VI.	310	50	2.2	1.2	6.8	3.4	6.1	59.3	3.17	27.874	. .	27.388
	30	B. A. C. 1706	6.0	3	IV–VI.	343	55	2.6	3.7	9.7	7.9	8.6	2.2	5.78	27.075	. .	26.569
	31	f Draconis, S. P.	. .	3	IV–VI.	307	10	59.2	0.6	6.8	3.9	6.1	59.9	2.75	31.509	. .	31.021
	32	ψ^1 Draconis, S. P.	. .	3	IV$\frac{1}{2}$, V, V$\frac{1}{2}$.	311	10	2.2	2.4	7.9	6.4	6.9	0.3	4.35	33.125	. .	32.922
	33	ψ^2 Draconis, S. P.	. .	2	IV, VI.	"	"	"	"	"	"	"	"	"	32.442	. .	31.961
	34	B. A. C. 1879	. .	3	I–5.	332	10	2.7	3.4	9.8	6.7	9.4	1.2	5.53	33.115	. .	32.618
	35	22 Camelopardi	4.5	3	IV$\frac{1}{2}$, V, V$\frac{1}{2}$.	349	30	2.7	4.5	11.8	10.3	9.1	1.9	6.72	26.165	. .	25.668
	36	δ Ursæ Minoris, S. P.	. .	3	I–5.	325	30	0.9	1.2	7.8	5.0	6.2	0.0	3.52	28.382	. .	27.889
	37	B. A. C. 6375, S. P.	. .	3	IV–VI.	316	20	2.2	0.7	7.2	4.8	6.1	0.0	3.50	26.606	. .	26.123
	38	Groombridge 1228	. .	3	IV–VI.	347	55	2.8	5.2	11.6	10.1	7.3	2.2	6.53	29.725	. .	29.221
	39	Moon, N.	. .	3	V–IX.	34	0	4.2	7.0	12.1	11.2	9.2	5.0	8.12	32.013	. .	31.515
	40	B. A. C. 2377	. .	3	I–5.	337	45	0.5	1.3	8.1	5.9	4.1	58.5	3.07	29.849	. .	29.353
	41	Nadir	. .	.	. .	200	0	0.8	3.7	6.8	9.0	2.7	1.2	4.03	30.479	. .	. .
24	42	B. A. C. 1448	. .	3	I–5.	337	55	4.3	0.8	8.9	2.2	10.4	3.9	5.08	29.218	−0.474	28.743
	43	α Camelopardi	. .	3	IV–VI.	352	45	0.8	59.7	5.4	1.0	7.4	1.9	2.70	27.529	. .	27.048
	44	ε Ursæ Minoris, S. P.	. .	3	I–5.	321	10	1.1	59.8	6.1	59.9	7.4	2.1	2.73	31.545	. .	31.072
	45	B. A. C. 1619	. .	3	IV–VI.	341	5	2.8	1.8	7.7	3.0	9.8	3.9	4.83	34.652	. .	34.166
	46	Nadir	. .	.	. .	200	0	0.9	57.5	3.0	59.2	5.2	2.4	1.37	30.372	. .	. .
26	47	B. A. C. 1751	. .	3	IV–VI.	353	15	3.7	6.8	12.7	9.6	11.2	4.4	8.07	27.992	−0.491	27.494
	48	ω Draconis, S. P.	. .	3	IV–VI.	307	45	1.3	1.8	8.0	3.8	5.2	59.8	3.32	29.780	. .	29.297
	49	ψ^1 Draconis, S. P.	. .	3	IV–VI.	311	10	2.4	3.7	9.8	8.1	7.8	1.2	5.50	33.483	. .	33.002
	50	ψ^2 Draconis, S. P.	. .	2	IV, VI.	"	"	"	"	"	"	"	"	"	32.549	. .	32.072
	51	35 Draconis, S. P.	. .	3	IV–VI.	315	55	0.5	59.2	6.8	3.8	4.7	0.0	2.50	32.417	. .	31.938
	52	41 Draconis, S.P., (1st *)	. .	2	IV, VI.	318	55	1.0	0.6	7.4	3.3	4.4	0.1	2.80	32.486	. .	32.020
	53	41 Draconis, S.P., (2d *)	. .	3	IV$\frac{1}{2}$–V$\frac{1}{2}$.	"	"	"	"	"	"	"	"	"	32.132	. .	31.645
	54	B. A. C. 2069	. .	3	IV$\frac{1}{2}$–V$\frac{1}{2}$.	340	50	2.5	4.2	10.0	9.1	7.6	2.1	5.92	33.087	. .	32.593
	55	B. A. C. 2095	. .	3	IV$\frac{1}{2}$–V$\frac{1}{2}$.	339	10	1.4	3.4	10.5	7.7	6.4	1.1	5.08	25.899	. .	25.404
	56	42 Camelopardi	. .	3	IV–VI.	351	10	1.8	3.3	9.9	7.1	7.1	1.2	5.07	27.899	. .	27.401
	57	B. A. C. 2210	. .	3	IV–VI.	341	45	2.2	3.4	11.2	9.0	8.2	1.4	5.90	28.559	. .	28.056
	58	50 Draconis, S. P.	. .	3	IV–VI.	314	10	1.0	1.1	7.1	6.4	5.6	0.0	3.53	25.826	. .	25.346
	59	B. A. C. 2317	. .	3	I–5.	337	25	0.0	1.3	7.9	5.1	4.1	58.9	2.88	29.894	. .	29.402
	60	δ Draconis, S. P.	. .	3	IV–VI.	306	20	1.2	1.4	6.7	4.8	3.8	59.0	2.82	24.993	. .	24.509
	61	Piazzi VII, 67	. .	3	IV–VI.	350	10	1.8	3.1	10.0	9.2	4.6	0.9	4.93	29.485	. .	28.986
	62	B. A. C. 6702, S. P.	. .	3	IV–VI.	315	15	0.2	1.3	7.8	7.2	5.6	59.8	3.65	32.965	. .	32.486
	63	B. A. C. 2521	7.0	3	IV$\frac{1}{2}$–V$\frac{1}{2}$.	338	20	2.9	4.8	11.3	9.2	6.2	0.6	5.83	31.652	. .	31.157
	64	B. A. C. 6808	7.0	3	IV–VI.	307	55	1.5	3.7	8.3	7.8	5.3	0.2	4.47	25.069	. .	24.586
	65	B. A. C. 2677	. .	3	I–5.	336	5	1.3	3.1	9.6	6.8	4.6	59.6	4.17	30.306	−0.491	29.814

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	30.228	30.0	19.7	+ 2 18.4	N. 45 32 38.6	1 3.7	+ 84 27 21.1	— 17.2	Y.	
2	30.236	29.2	19.2	— 1 41.8	68 46 38.0	2 40.1	+ 72 17 3.1	+ 18.7	Y.	
3	. .	. .	. .	— 2 2.7	7 56 55.5	8.7	+ 46 50 43.0	— 9.0	Y.	
4	. .	. .	. .	— 1 29.2	7 56 22.0	8.7	+ 46 50 9.5	— 9.0	Y.	
5	. .	. .	. .	— 1 32.7	7 56 25.6	8.7	+ 46 50 13.1	— 9.0	Y.	
6	. .	. .	. .	+ 1 35.7	6 3 19.3	6.6	+ 44 57 4.7	— 8.5	Y.	
7	30.240	29.0	19.0	+ 1 9.0	6 3 46.0	6.7	+ 44 57 31.5	— 8.5	Y.	
8	30.235	28.6	20.0	+ 1 31.6	62 53 26.0	2 1.6	+ 78 10 53.6	+ 18.7	Y.	
9	. .	. .	. .	— 0 13.6	2 15 9.8	2.5	+ 41 8 51.1	— 7.4	Y.	
10	. .	. .	. .	— 1 7.1	2 16 3.3	2.5	+ 41 9 44.6	— 7.4	Y.	
11	30.236	28.0	20.0	— 0 40.4	N. 25 55 34.1	30.4	+ 64 49 43.3	— 13.7	Y.	
12	. .	. .	. .	— 0 10.2	S. 1 54 54.3	2 1	+ 36 58 42.4	— 6.1	Y.	
13	30.240	27.4	19.3	— 0 51.6	N. 72 0 46.6	3 11.0	+ 69 2 23.6	+ 18.3	Y.	
14	. .	. .	19.0	+ 0 46.7	42 4 8.0	56.5	+ 80 58 43.3	— 16.3	Y.	
15	30.240	27.2	18.7	+ 1 31.6	27 13 20.9	32.3	+ 66 7 32.0	— 13.6	Y.	
16	30.240	26.8	17.4	— 0 22.2	58 50 16.4	1 43.6	+ 82 14 21.2	+ 17.4	Y.	
17	30.236	26.5	17.4	— 2 3.4	38 56 57.0	50.8	+ 77 51 26.6	— 15.0	Y.	
18	. .	. .	17.6	+ 1 30.4	69 8 25.8	2 43.7	+ 71 55 11.7	+ 17.1	Y.	
19	30.242	26.2	17.6	+ 1 51.2	36 3 3.5	45.7	+ 74 57 28.0	— 14.1	Y.	
20	. .	. .	17.7	+ 0 34.1	72 14 22.5	3 14.2	+ 68 48 44.5	+ 16.5	Y.	
21	30.238	26.0	17.6	— 1 21.0	68 51 17.7	2 41.4	+ 72 12 22.1	+ 16.2	Y.	
22	30.240	26.0	17.4	— 1 15.5	47 51 11.2	1 9.4	+ 86 45 59.4	— 14.4	Y.	
23	. .	. .	. .		. .	. .	. .	. .	Y.	
24	30.008	42.4	37.0	— 1 40.3	65 1 36.7	2 7.9	+ 76 2 36.6	+ 20.9	Y.	
25	30.014	42.2	36.8	— 1 0.2	72 0 56.9	3 2.6	+ 69 2 21.7	+ 21.0	Y.	
26	30.010	42.0	35.8	+ 1 33.2	27 13 22.6	30.9	+ 66 7 32.3	— 15.3	Y.	
27	30.007	41.2	34.8	— 0 29.5	58 50 24.2	1 39.2	+ 82 14 17.8	+ 20.5	Y.	
28	30.010	41.0	34.0	— 2 6.5	38 57 1.4	48.7	+ 77 51 28.9	— 17.8	Y.	
29	. .	. .	. .	+ 1 21.7	69 8 35.1	2 36.8	+ 71 55 9.3	+ 20.9	Y.	Very faint.
30	30.010	40.7	32.7	+ 1 47.4	36 3 6.9	44.0	+ 74 57 29.7	— 17.1	Y.	
31	30.014	40.2	32.4	— 0 32.0	72 50 29.2	3 13.6	+ 68 12 38.4	+ 20.7	Y.	
32	30.014	40.0	32.0	— 1 31.4	68 51 27.1	2 35.3	+ 72 12 18.8	+ 20.5	Y.	
33	. .	. .	. .	— 1 1.4	68 50 57.0	2 35.2	+ 72 12 49.0	+ 20.5	Y.	
34	30.016	40.0	31.4	— 1 21.9	47 51 16.4	1 6.9	+ 86 46 2.1	— 18.4	Y.	
35	30.020	39.7	30.9	+ 2 15.6	30 27 37.7	35.6	+ 69 21 52.1	— 15.1	Y.	
36	30.020	39.6	30.3	+ 1 6.0	54 28 50.4	1 24.8	+ 86 36 6.0	+ 18.8	Y.	
37	30.020	39.1	29.4	+ 2 1.3	63 37 55.2	2 2.1	+ 77 26 23.9	+ 18.7	Y.	
38	. .	. .	. .	+ 0 24.4	N. 32 4 29.1	38.2	+ 70 58 46.1	— 14.1	Y.	
39	30.018	38.5	29.2	— 0 47.4	S. 13 59 20.7	2 8.0	+ 24 52 10.1	. .	Y.	
40	30.014	38.2	29.3	+ 0 20.2	N. 42 14 36.7	55.2	+ 81 9 10.7	— 14.6	Y.	Faint; hazy and cloudy.
41	. .	. .	. .		. .	. .	. .	. .	Y.	
42	29.590	51.8	50.4	+ 0 39.3	42 4 15.6	51.8	+ 80 58 46.2	— 18.6	Y.	
43	29.594	52.0	50.0	+ 1 32.4	27 13 24.9	29.6	+ 66 7 33.3	— 15.4	Y.	
44	29.592	51.7	49.5	— 0 33.5	58 50 30.8	1 34.9	+ 82 14 15.5	+ 20.9	Y.	
45	29.580	51.6	49.9	— 2 10.4	38 57 5.5	46.4	+ 77 51 30.7	— 18.1	Y.	Cloudy.
46	. .	. .	. .		. .	. .	. .	. .	Y.	
47	30.086	43.0	34.8	+ 1 18.4	26 43 33.5	30.4	+ 65 37 42.7	— 15.4	Y.	
48	30.090	43.0	34.5	+ 0 22.0	72 14 34.7	3 6.4	+ 68 48 40.1	+ 21.6	Y.	
49	30.085	42.8	34.2	— 1 33.9	68 51 28.4	2 35.0	+ 72 12 17.8	+ 21.4	Y.	
50	. .	. .	. .	— 1 4.8	68 50 59.3	2 34.9	+ 72 12 47.0	+ 21.4	Y.	
51	30.090	42.3	33.3	— 1 0.6	64 5 58.2	2 4.0	+ 76 58 19.0	+ 21.1	Y.	
52	. .	. .	. .	— 1 3.2	61 6 0.4	1 49.2	+ 79 58 31.6	+ 20.6	Y.	
53	30.080	42.0	33.1	— 0 51.5	61 5 48.7	1 49.2	+ 79 58 43.3	+ 20.6	Y.	
54	. .	. .	. .	— 1 21.1	39 11 15.2	49.3	+ 78 5 43.3	— 17.3	Y.	
55	30.082	41.7	32.2	+ 2 24.0	40 47 31.1	52.2	+ 79 42 2.1	— 17.5	Y.	
56	. .	. .	. .	+ 1 21.3	28 48 33.6	33.4	+ 67 42 55.8	— 14.7	Y.	
57	30.080	41.0	31.2	+ 1 0.8	38 13 53.3	47.8	+ 77 8 19.9	— 16.5	Y.	
58	30.080	40.8	31.3	+ 2 25.6	65 47 30.8	2 14.3	+ 75 16 36.1	+ 19.7	Y.	
59	30.084	40.2	31.8	+ 0 18.7	42 34 38.4	55.7	+ 81 29 12.9	— 16.5	Y.	
60	30.080	40.1	30.8	+ 2 51.8	73 37 5.4	3 24.2	+ 67 25 51.6	+ 19.1	Y.	
61	. .	. .	30.6	+ 0 31.7	29 49 23.3	34.8	+ 68 43 36.9	— 13.4	Y.	
62	. .	. .	30.3	— 1 17.8	64 46 14.1	2 8.5	+ 76 17 58.6	+ 18.1	Y.	
63	30.078	39.7	30.1	— 0 36.2	41 40 30.4	54.1	+ 80 35 3.3	— 16.1	Y.	
64	. .	. .	30.2	+ 2 49.4	72 2 6.1	3 5.9	+ 69 1 9.2	+ 17.6	Y.	
65	30.074	39.0	30.0	+ 0 5.8	N. 43 54 50.0	58.6	+ 82 49 27.4	— 13.7	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
1872.						°	′	″	″	″	″	″	″	″	r.	r.	r.
Feb. 26	1	B. A. C. 2749. . .	. .	3	IV½–V½.	346	5	2.8	4.4	11.1	8.5	6.1	1.5	5.73	28.587	−0.491	28.094
	2	Anon. $8^h\ 10^m\ 22^s$.	9.5	3	III–VII.	27	55	2.7	7.3	10.9	11.6	7.2	3.0	7.12	36.413	. .	35.916
	3	Groom. 3241, S. P. .	. .	3	IV–VI.	311	0	2.2	4.8	9.8	8.2	6.1	0.7	5.30	27.058	. .	26.576
	4	4 Cephei, S. P.. . .	. .	3	IV–VI.	305	5	3.0	2.7	9.8	9.1	5.6	0.8	5.17	23.638	. .	23.161
	5	B. A. C. 3042. . .	. .	3	1–5.	337	35	1.2	4.1	10.3	8.1	4.4	0.3	4.73	32.216	. .	31.724
	6	Nadir	. .	.	. .	200	0	0.0	2.2	6.3	7.8	0.8	59.3	2.73	30.433	. .	. .
Mar. 16	7	B. A. C. 2210. . .	5.0	3	IV–VI.	341	45	2.0	1.9	10.0	6.9	7.8	1.0	4.93	28.723	−0.550	28.161
	8	50 Draconis, S. P. .	7.0	3	IV–VI.	314	10	2.2	1.0	8.6	5.2	7.3	0.5	4.13	26.081	. .	25.542
	9	B. A. C. 2317. . .	. .	3	1–5.	337	25	3.2	3.2	11.2	6.1	7.5	1.5	5.45	30.173	. .	29.622
	10	δ Draconis, S. P. .	. .	3	IV–VI.	306	25	2.9	1.7	8.6	4.9	5.8	0.8	4.12	34.832	. .	34.289
	11	B. A. C. 2320. . .	. .	3	2–4.	329	55	2.9	3.9	11.4	7.8	7.1	1.3	5.73	31.730	. .	31.183
	12	σ Draconis, S. P. .	. .	3	IV–VI.	308	25	1.2	1.2	8.0	3.7	5.0	59.6	3.12	34.722	. .	34.180
	13	B. A. C. 2590. . .	. .	3	IV–VI.	339	5	1.7	2.7	10.7	7.0	6.4	59.2	4.62	31.154	. .	30.588
	14	λ Ursæ Minoris, S. P..	. .	3	V, 3½, 4.	327	50	3.8	6.8	12.1	10.8	10.7	2.7	7.82	30.852	. .	30.304
	15	Anon. $8^h\ 9^m\ 46^s$.	9.5	1	V.	27	50	1.2	6.1	9.7	10.9	7.6	2.9	6.40	31.363	. .	30.813
	16	Anon. $8^h\ 10^m\ 22^s$.	9.2	2	V, IX.	"	"	"	"	"	"	"	"	"	27.016	. .	26.450
	17	B. A. C. 2824. . .	. .	3	IV–VI.	349	10	2.2	5.7	11.8	11.3	8.8	1.5	6.88	32.278	. .	31.720
	18	Groom. 3241, S. P. .	. .	3	IV–VI.	311	0	0.4	0.9	7.2	3.7	4.0	58.2	2.40	27.199	. .	26.658
	19	Nadir	. .	.	. .	199	59	58.8	61.1	64.5	66.8	61.2	58.8	61.87	30.467	. .	. .
19	20	υ Draconis, S. P. .	. .	3	IV–VI.	310	5	0.8	58.5	4.8	58.9	3.7	59.2	0.98	33.528	−0.567	32.970
	21	B. A. C. 2377. . .	7.0	3	1–5.	337	45	2.3	0.4	7.4	2.1	6.8	1.2	3.37	30.196	. .	29.628
	22	τ Draconis, S. P. .	. .	3	IV–VI.	312	0	2.7	0.3	7.1	2.8	5.5	1.7	3.35	25.465	. .	24.908
	23	Jupiter, S.	. .	2	I, IX.	36	25	2.4	1.2	7.0	4.1	6.2	3.0	3.98	31.828	. .	31.241
	24	Jupiter, N.	. .	3	IV–VI.	"	"	"	"	"	"	"	"	"	33.207	. .	32.639
	25	B. A. C. 2590. . .	6.0	3	IV–VI.	339	5	3.5	3.2	10.9	6.9	8.8	3.0	6.05	31.235	. .	30.652
	26	λ Ursæ Minoris, S. P..	. .	3	V, 3½, 4.	327	50	0.9	0.9	6.9	3.6	6.6	1.2	3.35	30.723	. .	30.158
	27	B. A. C. 2749. . .	6.0	3	IV–VI.	346	5	1.1	59.8	6.4	2.1	4.8	0.9	2.52	28.745	. .	28.168
	28	Moon, N..	. .	3	III–VII.	35	35	3.1	3.9	7.6	7.0	7.7	4.9	5.70	27.422	. .	26.851
	29	Groom. 3241, S. P. .	7.0	3	IV–VI.	311	0	3.5	3.7	8.8	5.5	6.8	3.0	5.22	27.431	. .	26.873
	30	6 Ursæ Majoris . .	. .	3	IV–VI.	353	50	3.2	3.7	10.0	7.2	8.1	3.1	5.88	33.742	. .	33.169
	31	Nadir	. .	.	. .	200	0	0.4	1.7	5.8	6.5	3.8	2.7	3.48	30.534	. .	. .
21	32	Piazzi 67	. .	3	IV–VI.	350	10	2.2	3.2	9.9	10.0	6.4	2.0	5.62	29.697	. .	29.122
	33	B. A. C. 6702, S. P. .	. .	3	IV½–V½.	315	15	2.5	2.2	9.8	8.1	6.7	1.9	5.20	33.251	. .	32.687
	34	B. A. C. 2521. . .	. .	3	IV½–V½.	338	20	1.8	2.8	9.6	7.4	5.8	59.2	4.43	31.837	. .	31.266
	35	ε Draconis, S. P. .	. .	3	IV–VI.	308	49	59.7	59.1	5.3	3.1	2.7	57.7	1.27	25.313	. .	24.754
	36	B. A. C. 2677. . .	. .	3	IV½–V½.	336	5	2.7	3.8	10.7	8.1	6.2	0.2	5.28	30.591	. .	30.018
	37	B. A. C. 2749. . .	. .	3	IV–VI.	346	5	2.3	2.8	10.8	7.4	5.6	0.8	4.95	28.793	. .	28.217
	38	Lacaille 3293. . .	. .	3	III–VII.	86	15	2.1	5.4	9.9	11.9	6.8	1.4	6.25	28.607	. .	28.045
	39	Anon. $8^h\ 24^m\ 31^s$.	8.5	2	VII, IX.	90	10	3.7	7.2	9.8	11.4	7.2	1.9	6.87	27.182	. .	26.632
	40	Anon. $8^h\ 26^m\ 0^s$.	8.3	2	VII, IX.	"	"	"	"	"	"	"	"	"	31.128	. .	30.578
	41	Anon. $8^h\ 27^m\ 1^s$.	7.0	2	VII, IX.	"	"	"	"	"	"	"	"	"	35.101	. .	34.551
	42	4 Cephei, S. P.. . .	. .	3	IV–VI.	305	10	0.0	59.2	5.6	5.8	2.2	57.6	1.73	33.377	. .	32.817
	43	B. A. C. 3042. . .	5.5	3	IV½–V½.	337	35	1.7	4.6	9.8	8.3	4.8	59.7	4.82	32.511	. .	31.939
	44	B. A. C. 7363, S. P. .	. .	3	IV–VI.	309	50	0.2	2.4	7.9	5.3	3.1	59.1	3.00	28.252	. .	27.693
	45	1 Draconis	3.0	3	IV½–V½.	337	0	0.6	0.8	7.2	6.6	1.7	57.4	2.38	28.694	. .	28.122
	46	B. A. C. 7509, S. P. .	7.5	3	IV½–V½.	314	45	3.2	5.2	11.8	11.0	7.8	2.8	6.97	28.849	. .	28.285
	47	11 Cephei	. .	3	IV–VI.	309	40	0.7	3.1	7.8	7.0	4.5	59.2	3.72	31.565	. .	31.007
	48	B. A. C. 3376. . .	. .	3	IV–VI.	345	25	3.6	6.6	11.9	10.0	5.4	0.9	6.40	30.828	. .	30.251
	49	B. A. C. 7678, S. P. .	. .	3	IV½–V½.	318	35	1.7	4.1	9.8	7.8	4.5	0.2	4.68	26.528	. .	25.965
	50	Moon, N..	. .	3	III–VII.	42	0	2.8	7.2	10.6	12.1	7.3	2.1	7.02	28.541	. .	27.971
	51	B. A. C. 3528. . .	. .	3	1–5.	335	40	2.2	5.2	10.2	10.1	5.5	1.6	5.80	26.964	. .	26.396
	52	B. A. C. 7851, S. P. .	. .	3	1–5.	324	20	0.7	2.3	8.0	7.0	3.8	59.1	3.48	25.520	. .	24.955
	53	Weisse X, 520 . .	6.5	2	VII, IX.	70	25	2.3	6.6	9.3	12.7	5.7	2.3	6.48	30.563	. .	30.000
	54	Nadir	. .	.	. .	200	0	0.8	4.2	7.7	12.1	2.2	1.2	4.70	30.572	. .	. .
23	55	B. A. C. 2521. . .	. .	3	IV½–V½.	338	20	3.7	3.7	9.8	8.0	8.2	3.1	6.83	31.972	−0.586	31.382
	56	B. A. C. 6808, S. P. .	. .	3	IV½–V½.	307	55	0.2	0.1	5.0	1.8	4.2	59.3	1.77	25.392	. .	24.808
	57	Nadir	. .	.	. .	200	0	2.2	2.2	6.7	6.8	5.1	3.3	4.38	30.580	. .	. .
	58	Anon. $8^h\ 23^m\ 46^s$.	7.5	3	IV–VI.	87	5	3.2	3.1	8.4	7.5	8.2	3.9	5.72	26.252	. .	25.668
	59	Lacaille 3341. . .	7.0	2	I, IX.	"	"	"	"	"	"	"	"	"	28.940	. .	28.380
	60	Weisse 829 . . .	8.5	2	VI, IX.	61	25	3.2	4.3	8.9	7.7	9.3	5.2	6.43	24.984	. .	24.399
	61	B. A. C. 3042. . .	. .	3	IV½–V½.	337	35	0.2	59.2	7.2	2.0	4.4	0.0	2.17	32.508	. .	31.917
	62	σ^2 Ursæ Majoris . .	. .	3	IV–VI.	351	15	0.3	1.0	7.2	5.2	5.9	0.3	3.32	30.951	. .	30.358
	63	1 Draconis, (H.) . .	. .	3	IV½–V½.	337	0	0.8	59.2	7.1	3.2	4.6	0.2	2.52	28.774	. .	28.183
	64	9 Cephei, S. P. . , .	. .	2	V, VI.	300	30	0.5	59.2	5.1	3.3	3.5	0.3	1.98	32.923	. .	32.341
	65	78 Draconis, S. P. . .	. .	3	V, V½, VI.	310	40	1.0	0.4	6.3	2.9	4.2	0.1	2.48	30.734	−0.586	30.154

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	. .	. .	. .	+ 0 59.6	N. 33 53 54.5	40.9	+ 72 48 14.2	— 11.7	Y.	
2	. .	. .	. .	— 3 5.1	S. 7 52 2.0	8.4	+ 31 1 28.4	— 2.6	Y.	Several faint stars in the field.
3	30.074	38.2	29.8	+ 1 47.1	N. 68 58 7.6	2 37.3	+ 72 5 36.3	+ 14.7	Y.	
4	30.070	38.0	29.3	+ 3 34.0	74 51 20.8	3 41.6	+ 66 11 18.8	+ 14.4	Y.	
5	30.068	38.0	29.6	— 0 54.0	42 25 49.3	55.6	+ 81 20 23.7	— 10.1	Y.	
6	. .	. .	. .		. .	. .	. . . .	. .	Y.	
7	30.030	42.2	33.2	+ 0 57.5	38 13 57.5	47.5	+ 77 8 23.8	— 19.2	Y.	
8	30.032	42.0	32.7	+ 2 19.5	65 47 36.4	2 13.7	+ 75 16 31.1	+ 22.8	Y.	
9	30.034	41.3	32.3	+ 0 11.8	42 34 42.7	55.6	+ 81 29 17.1	— 19.7	Y.	
10	30.032	41.0	32.2	— 2 14.2	73 37 10.1	3 23.2	+ 67 25 47.9	+ 22.7	Y.	
11	30.026	40.4	31.7	— 0 37.0	50 5 31.3	1 12.3	+ 89 0 22.4	— 20.3	Y.	
12	30.018	40.2	31.7	— 2 10.8	71 37 7.7	3 0.4	+ 69 26 13.1	+ 22.1	Y.	
13	30.012	40.0	31.3	— 0 18.4	40 55 13.8	52.5	+ 79 49 45.1	— 18.2	Y.	
14	30.018	39.7	31.3	— 0 9.5	52 10 2.7	1 17.9	+ 88 55 0.6	+ 21.1	Y.	
15	. .	. .	. .	— 0 25.5	7 49 41.0	8.3	+ 31 3 49.5	— 4.5	Y.	
16	. .	. .	. .	+ 1 51.1	7 51 57.5	8.3	+ 31 1 33.0	— 4.5	Y.	
17	30.016	39.0	31.0	— 0 53.8	30 50 46.9	36.2	+ 69 45 1.9	— 14.6	Y.	
18	30.014	38.4	30.5	+ 1 44.6	68 58 13.0	2 36.7	+ 72 5 31.5	+ 18.6	Y.	
19	. .	. .	. .		. .	. .	. . . .	. .	Y.	
20	29.888	46.5	41.2	— 1 32.9	69 56 32.0	2 40.5	+ 71 7 8.7	+ 23.1	Y.	
21	29.890	45.8	40.7	+ 0 11.6	42 14 45.0	53.7	+ 81 9 17.5	— 19.7	Y.	
22	29.890	45.2	40.5	+ 2 39.3	N. 67 57 17.3	2 25.2	+ 73 6 38.7	+ 22.7	Y.	
23	. .	. .	. .	— 0 38.8	S. 16 24 25.2	17.5	+ 22 28 55.2	. .	Y.	
24	. .	. .	. .	— 1 22.6	S. 16 23 41.4	17.5	+ 22 29 39.9	. .	Y.	
25	29.895	44.5	39.6	— 0 20.4	N. 40 55 14.3	51.4	+ 79 49 44.5	— 18.6	Y.	
26	29.897	44.0	39.3	— 0 4.9	52 10 1.6	1 16.3	+ 88 55 3.3	+ 20.2	Y.	
27	29.890	43.6	38.6	+ 0 57.3	N. 33 54 0.2	39.9	+ 72 48 18.9	— 16.4	Y.	
28	29.884	43.2	38.3	+ 1 38.5	S. 15 36 44.2	40.6	+ 23 16 14.0	. .	Y.	Unsteady.
29	29.886	43.0	38.2	+ 0.37.8	N. 68 59 16.9	2 33.7	+ 72 4 30.6	+ 20.2	Y.	
30	29.880	42.4	37.9	— 1 39.1	26 11 33.3	29.3	+ 65 5 41.3	— 12.9	Y.	
31	. .	. .	. .		. .	. .	. . . .	. .	Y.	High wind.
32	30.148	39.2	29.2	+ 0 27.5	29 49 26.9	35.0	+ 68 43 40.7	— 16.7	Y.	
33	30.148	38.7	29.2	— 1 24.0	64 46 18.9	2 9.1	+ 76 17 53.2	+ 22.5	Y.	
34	30.150	38.2	29.2	— 0 39.6	41 40 35.2	54.4	+ 80 35 7.3	— 19.3	Y.	
35	30.156	38.0	29.0	+ 2 44.1	71 7 14.6	2 57.2	+ 69 56 9.5	+ 22.2	Y.	
36	30.160	37.7	29.0	— 0 0.6	43 54 55.3	58.8	+ 82 49 32.9	— 18.8	Y.	
37	30.164	37.3	28.7	+ 0 55.8	N. 33 53 59.2	41.2	+ 72 48 19.2	— 16.7	Y.	
38	. .	. .	. .	+ 1 1.2	S. 66 16 7.4	2 18.5	— 27 24 47.1	+ 11.0	Y.	
39	. .	. .	. .	+ 1 45.6	70 11 52.3	2 48.6	— 31 21 2.1	+ 11.5	Y.	
40	. .	. .	. .	— 0 18.1	70 9 48.8	2 48.2	— 31 18 58.2	+ 11.4	Y.	
41	30.166	37.0	28.7	— 2 22.4	S. 70 7 44.5	2 48.0	— 31 16 53.7	+ 11.4	Y.	
42	30.172	36.8	28.8	— 1 28.1	N. 74 51 26.4	3 42.9	+ 66 11 11.9	+ 20.3	Y.	
43	30.172	36.7	28.6	— 1 0.7	42 25 55.8	56.0	+ 81 20 30.6	— 16.3	Y.	
44	30.174	36.2	28.4	+ 1 12.2	70 8 44.8	2 48.3	+ 70 54 48.1	+ 18.8	Y.	
45	30.180	36.2	28.0	+ 0 58.8	42 58 58.9	57.1	+ 81 53 34.8	— 14.8	Y.	
46	30.180	36.1	28.2	+ 53.6	65 13 59.4	2 12.2	+ 75 50 9.6	+ 17.1	Y.	
47	30.183	36.0	28.0	— 0 31.5	70 20 27.8	2 50.3	+ 70 43 3.1	+ 16.7	Y.	
48	30.184	36.0	28.0	— 0 7.6	34 35 1.5	42.3	+ 73 29 22.6	— 11.4	Y.	
49	30.186	35.8	28.2	+ 2 6.2	N. 61 22 49.1	+ 1 52.0	+ 79 41 40.1	+ 14.8	Y.	
50	. .	. .	. .	+ 1 3.5	S. 22 1 10.5	— 5 1.7	+ 16 57 30.0	. .	Y.	
51	30.188	35.7	28.0	+ 1 52.8	N. 44 18 1.4	+ 59.8	+ 83 12 40.1	— 11.0	Y.	
52	30.188	35.5	28.0	+ 2 37.8	N. 55 37 18.7	1 29.5	+ 85 27 33.0	+ 12.1	Y.	
53	. .	. .	. .	0 0.0	S. 50 25 6.5	1 14.1	— 11 32 41.8	+ 6.4	Y.	Saw no other star.
54	. .	. .	. .		. .	. .	. . . .	. .	Y.	
55	29.826	43.2	39.5	— 0 43.3	N. 41 40 36.4	52.7	+ 80 35 7.9	— 19.4	Y.	
56	29.822	43.2	39.4	+ 2 42.5	N. 72 2 15.8	3 0.7	+ 69 1 4.8	+ 22.5	Y.	
57	. .	. .	. .		. .	. .	. . . .	. .	Y.	
58	29.840	43.2	39.5	+ 2 15.6	S. 67 7 21.3	2 19.5	— 28 16 2.0	+ 11.3	Y.	
59	. .	. .	. .	+ 0 51.6	67 5 57.3	2 19.3	— 28 14 37.8	+ 11.2	Y.	
60	. .	. .	. .	+ 2 55.3	S. 41 28 1.7	52.4	— 2 35 15.3	+ 5.4	Y.	
61	29.850	43.2	38.5	— 1 0.0	N. 42 25 57.8	54.2	+ 81 20 30.8	— 16.6	Y.	
62	29.862	43.0	38.4	— 0 11.2	28 45 7.5	32.6	+ 67 39 18.9	— 13.5	Y.	
63	29.864	42.8	38.1	+ 0 56.9	42 59 0.6	55.4	+ 81 53 34.8	— 15.2	Y.	
64	29.880	42.5	38.1	— 1 13.3	79 31 11.3	5 11.7	+ 61 29 58.3	+ 17.9	Y.	
65	29.886	42.5	37.2	— 0 4.8	N. 69 20 2.3	2 36.8	+ 71 43 42.1	+ 17.0	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
1872.						°	′	″	″	″	″	″	″	″	r.	r.	r.
Mar. 23	1	B. A. C. 7678, S. P. .	. .	3	IV–VI.	318	35	0.9	0.2	7.9	2.9	4.8	0.4	2.85	26.605	−0.586	26.034
	2	24 Cephei, S. P. . . .	. .	3	IV–VI.	310	40	1.2	0.8	5.8	3.0	3.8	0.2	2.47	33.210	. .	32.633
	3	Groombridge 1633 .	. .	3	1–5.	335	40	1.4	2.2	7.7	4.8	5.8	0.8	3.78	26.971	. .	26.384
27	4	ε Draconis, S. P. . .	. .	3	IV–VI.	308	55	2.6	0.3	6.4	1.1	6.8	2.2	3.23	35.319	−0.593	34.734
	5	B. A. C. 2677. . .	. .	3	IV½–V½.	336	5	3.0	1.6	7.9	3.5	7.2	3.5	4.45	30.698	. .	30.100
	6	κ Cephei, S. P. . .	. .	3	IV½–V½.	316	15	2.5	58.8	6.8	2.0	6.8	3.1	3.33	31.206	. .	30.616
	7	B. A. C. 2824. . .	. .	3	IV½–V½.	349	10	2.2	1.8	8.8	5.4	7.8	3.6	4.93	32.330	. .	31.735
	8	Anon. $8^h\ 24^m\ 21^s$.	7.5	3	III–VII.	39	0	1.2	59.3	4.9	2.2	5.7	2.9	2.70	30.647	. .	30.050
	9	Weisse 829 . . .	8.3	3	IV–VI.	61	30	3.7	2.7	6.9	5.0	7.2	5.2	5.12	34.572	. .	33.979
	10	Lacaille 3511. . .	7.7	3	III–VII.	85	0	2.7	2.1	7.9	6.8	7.4	4.9	5.30	28.143	. .	27.555
	11	Anon. $8^h\ 49^m\ 32^s$.	8.0	2	V, VII.	91	45	2.1	0.9	5.2	5.2	5.4	1.7	3.42	26.685	. .	26.090
	12	Anon. $8^h\ 50^m\ 20^s$.	7.0	2	I, IX.	"	"	"	"	"	"	"	"	"	29.352	. .	28.791
	13	c Ursæ Majoris . .	. .	3	IV–VI.	356	55	3.1	3.7	9.2	8.0	7.3	oblit.	4.23	27.075	. .	26.476
	14	α Cephei, S. P. . .	. .	3	IV–VI.	301	0	1.4	0.7	6.2	2.8	5.2	1.4	2.95	29.025	. .	28.438
	15	Anon. $9^h\ 32^m\ 40^s$.	7.8	3	I, V, IX.	95	10	3.1	4.8	9.8	7.9	9.2	4.9	6.62	28.316	. .	27.747
	16	B. A. C. 3376. . .	5.0	3	IV–VI.	345	24	58.5	56.2	63.8	58.8	61.2	57.7	59.37	30.700	. .	30.097
	17	B. A. C. 7678, S. P. .	7.0	3	IV½–V½.	318	35	0.8	0.0	7.0	2.1	3.9	1.0	2.47	26.638	. .	26.049
	18	32 Ursæ Majoris . .	. .	3	IV–VI.	353	10	0.6	1.2	7.2	5.2	5.2	1.8	3.53	32.186	. .	31.586
	19	B. A. C. 7810, S. P. .	. .	3	IV–VI.	305	0	2.8	1.2	7.8	6.1	6.1	2.8	4.47	29.506	. .	28.920
	20	Groombridge 1673 .	. .	3	IV–VI.	349	10	1.6	2.5	9.3	8.1	7.2	1.9	5.10	31.899	. .	31.298
	21	Weisse X, 703 . .	7.0	3	III–VII.	51	50	3.8	3.7	8.2	8.8	6.8	4.7	6.00	27.356	. .	26.762
	22	Anon. $10^h\ 56^m\ 22^s$.	. .	3	III–VII.	22	5	2.0	3.1	8.9	7.8	6.6	3.2	5.27	32.727	. .	32.127
	23	Nadir	. .	.	. .	200	0	0.6	1.4	4.8	6.8	3.2	2.2	3.17	30.548	. .	. .
29	24	B. A. C. 2677. . .	. .	3	1–5.	336	5	0.9	55.8	4.2	56.9	4.0	0.8	0.43	30.624	−0.602	30.021
	25	B. A. C. 2749. . .	. .	3	IV½–V½.	346	5	2.7	58.4	7.5	59.7	5.9	4.1	3.05	28.910	. .	28.306
	26	o Ursæ Majoris . .	. .	3	IV–VI.	357	45	3.1	1.0	7.6	5.0	6.2	oblit.	4.58	30.417	. .	29.810
	27	Anon. $8^h\ 25^m\ 30^s$.	. .	2	III, VI.	39	0	5.0	0.1	6.8	2.4	8.4	7.7	5.07	30.786	. .	30.179
	28	O. Arg. S. 8776 . .	. .	3	V–IX.	82	45	1.4	57.4	3.2	1.7	3.1	3.1	1.65	33.780	. .	33.186
	29	ρ^3 Cancri.	. .	3	V–IX.	30	30	1.6	57.0	2.9	59.5	4.3	4.8	1.68	33.496	. .	32.881
	30	B. A. C. 3107. . .	7.5	3	III–VII.	43	10	3.4	59.9	4.9	2.0	5.8	5.1	3.52	31.754	. .	31.149
	31	77 Draconis, S. P. .	. .	3	IV½–V½.	316	30	2.2	56.6	4.2	59.8	4.3	3.1	1.70	27.527	. .	26.928
	32	1 Draconis, (H.) . .	. .	3	IV½–V½.	337	0	3.4	59.8	8.2	2.4	7.2	5.1	4.35	28.958	. .	28.351
	33	B. A. C. 3376. . .	. .	3	IV–VI.	345	25	5.2	2.4	10.0	5.3	8.8	7.0	6.45	31.006	. .	30.394
	34	Nadir	. .	.	. .	200	0	3.7	0.2	5.8	4.7	5.2	5.9	4.25	30.591	. .	. .
Apr. 2	35	B. A. C. 2749. . .	. .	3	IV½–V½.	346	5	0.0	57.3	5.8	0.1	3.6	0.7	1.25	28.843	−0.608	28.233
	36	o Ursæ Majoris . .	. .	3	IV–VI.	357	45	1.4	0.7	7.8	4.9	5.3	oblit.	4.08	30.410	. .	29.797
	37	π Ursæ Majoris . .	. .	3	IV–VI.	354	5	0.6	57.7	5.8	0.5	4.2	0.5	1.55	25.854	. .	25.240
	38	B. A. C. 2930. . .	. .	3	IV–VI.	338	25	1.3	56.8	5.9	0.8	3.2	59.6	1.27	32.564	. .	31.939
	39	Anon. $8^h\ 45^m\ 16^s$.	. .	3	III–VII.	45	10	1.2	58.2	4.4	2.9	3.4	1.8	2.00	33.939	. .	33.329
	40	Lacaille 3621. . .	7.0	3	III–VII.	86	10	3.8	2.8	7.2	7.4	6.8	5.1	5.52	29.513	. .	28.910
	41	B. A. C. 7363, S. P. .	. .	3	IV–VI.	309	50	2.9	1.2	7.4	2.3	5.7	3.9	3.90	28.630	. .	28.030
	42	Anon. $9^h\ 15^m\ 50^s$.	7.0	3	III–VII.	93	40	3.7	2.1	6.0	5.8	6.2	3.9	4.62	31.882	. .	31.281
	43	β Cephei, S. P. . .	. .	3	IV–VI.	308	55	0.1	56.4	3.7	59.1	2.4	0.0	0.28	28.517	. .	27.917
	44	Anon. $9^h\ 40^m\ 55^s$.	8.0	3	IV–VI.	98	55	4.1	3.4	5.3	4.8	5.2	3.2	4.33	36.513	. .	35.908
	45	Anon. $9^h\ 41^m\ 24^s$.	7.5	2	VII, IX.	"	"	"	"	"	"	"	"	"	31.946	. .	31.362
	46	Anon. $9^h\ 50^m\ 40^s$.	6.3	3	III–VII.	99	5	4.8	4.7	6.4	6.2	6.2	4.1	5.40	36.595	. .	35.995
	47	Anon. $10^h\ 4^m\ 14^s$.	8.3	3	III–VII.	95	0	2.8	1.1	5.9	5.4	5.1	2.3	3.77	33.429	. .	32.828
	48	B. A. C. 3528. . .	. .	3	1–5.	335	40	2.9	1.0	8.0	4.5	5.3	3.2	4.15	27.140	. .	26.531
	49	26 Cephei, S. P. . .	6.0	3	IV–VI.	303	25	2.7	59.8	7.1	5.0	4.8	2.2	3.60	28.500	. .	27.898
	50	38 Ursæ Majoris . .	. .	3	V–VII.	352	30	4.4	3.1	9.1	7.8	6.8	4.3	5.92	29.254	. .	28.632
	51	B. A. C. 7941, S. P. .	. .	3	IV½–V½.	319	40	0.3	57.0	3.7	59.8	2.7	0.0	0.58	33.539	. .	32.935
	52	α Ursæ Majoris . .	. .	3	IV–VI.	356	25	4.7	5.3	11.8	9.0	8.2	6.2	7.53	26.173	. .	25.559
	53	π Cephei, S. P. . .	. .	3	IV–VI.	313	35	2.3	59.8	8.1	4.4	5.7	2.2	3.75	26.136	. .	25.539
	54	Nadir	. .	.	. .	200	0	0.8	59.6	4.6	4.8	2.6	2.9	2.55	30.544	. .	. .
4	55	B. A. C. 2749. . .	. .	3	IV½–V½.	346	5	1.4	0.2	7.8	5.1	4.1	1.2	3.30	28.909	−0.611	28.296
	56	κ Cephei, S. P. . .	. .	3	IV½–V½.	316	15	3.2	59.7	8.1	4.9	4.7	2.8	3.90	31.263	. .	30.655
	57	Anon. $8^h\ 23^m\ 47^s$.	7.5	3	III–VII.	87	5	4.3	6.3	10.6	11.7	7.4	6.1	7.73	26.321	. .	25.715
	58	B. A. C. 2885. . .	6.0	3	III–V.	93	0	2.2	2.2	6.2	6.1	3.7	0.7	3.52	25.743	. .	25.136
	59	Anon. $8^h\ 28^m\ 30^s$.	7.8	3	V–VII.	"	"	"	"	"	"	"	"	"	24.164	. .	23.557
	60	Anon. $8^h\ 43^m\ 8^s$ . .	6.5	3	V–IX.	100	5	4.2	4.4	9.2	9.2	6.4	4.2	6.27	32.882	. .	32.289
	61	Anon. $8^h\ 45^m\ 9^s$ . .	8.3	2	V, VII.	"	"	"	"	"	"	"	"	"	31.788	. .	31.183
	62	Anon. $8^h\ 45^m\ 55^s$.	8.8	1	IX.	"	"	"	"	"	"	"	"	"	34.342	. .	33 771
	63	Anon. $8^h\ 49^m\ 17^s$.	7.0	3	III–VII.	"	"	"	"	"	"	"	"	"	23.304	. .	22.701
	64	τ Ursæ Majoris . .	. .	2	IV, VII.	354	50	2.3	4.1	10.1	9.2	6.1	3.1	5.82	27.077	. .	26.457
	65	B. A. C. 7363, S. P. .	6.0	3	IV–VI.	309	50	3.1	2.8	8.8	5.8	5.5	2.0	4.67	28.533	−0.611	27.930

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	29.890	42.2	37.2	+ 2 4.1	N. 61 22 53.1	1 48.8	+ 79 41 39.3	+ 15.3	Y.	
2	29.906	42.0	37.0	— 1 22.4	69 21 19.9	2 37.1	+ 71 42 24.2	+ 15.2	Y.	
3	29.910	42.0	36.9	+ 1 53.1	44 18 3.1	58.2	+ 83 12 41.1	— 11.5	Y.	
4	30.060	50.2	46.2	— 2 28.1	71 7 24.9	2 50.4	+ 69 56 5.9	+ 22.8	Y.	
5	30.048	50.2	45.4	— 0 3.1	43 54 58.7	56.7	+ 82 49 34.1	— 19.7	Y.	
6	30.050	49.6	44.4	— 0 19.3	63 45 15.9	1 59.2	+ 77 19 6.1	+ 22.9	Y.	
7	. .	. .	. .	— 0 54.3	N. 30 50 49.3	35.3	+ 69 45 3.4	— 16.3	Y.	
8	. .	. .	. .	— 0 1.6	S. 19 0 1.1	20.4	+ 19 53 17.3	— 1.5	Y.	
9	30.052	49.2	42.0	— 2 4.5	41 28 0.6	52.4	— 2 35 14.2	+ 5.4	Y.	
10	. .	. .	. .	+ 1 16.5	65 1 21.8	2 6.9	— 26 9 49.9	+ 8.3	Y.	Preceded 17^s by larger star to northward.
11	. .	. .	. .	+ 2 2.2	71 47 5.6	2 59.0	— 32 56 25.8	+ 11.9	Y.	
12	30.054	48.3	40.4	+ 0 37.8	S. 71 45 41.2	2 58.8	— 32 55 1.2	+ 11.9	Y.	
13	30.052	48.0	39.5	+ 1 50.3	N. 23 3 5.5	25.4	+ 61 5 9.7	— 12.6	Y.	Corr., +0″.23, applied to mean of A, B, C, D.
14	30.056	47.2	39.0	+ 0 48.9	N. 78 59 8.2	4 58.1	+ 62 2 15 0	+ 19.7	Y.	
15	30.052	46.7	38.4	+ 1 10.5	S. 75 11 17.2	3 42.5	— 36 21 20.8	+ 11.2	Y.	Saw but one.
16	30.048	46.0	38.0	— 0 3.0	N. 34 35 3.5	41.2	+ 73 29 23.5	— 12.8	Y.	
17	30.048	46.0	37.4	+ 2 3.6	61 22 53.9	1 49.3	+ 79 41 38.0	+ 16.2	Y.	
18	30.046	45.2	36.8	— 0 49.6	26 50 46.1	30.3	+ 65 44 55.2	— 9.8	Y.	
19	30.046	45.0	36.5	+ 0 33.8	74 59 21.7	3 40.3	+ 66 3 19.1	+ 15.7	Y.	
20	30.048	44.2	36.2	— 0 40.6	N. 30 50 35.5	35.9	+ 69 44 50.2	— 8.8	Y.	
21	. .	. .	. .	+ 1 41.3	S. 31 51 47.3	37.3	+ 7 1 14.2	+ 4.2	Y.	
22	30.046	43.8	35.5	— 1 6.5	S. 2 3 58.7	2.2	+ 36 49 37.9	— 0.7	Y.	
23	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
24	29.910	57.7	54.3	— 0 0.7	N. 43 55 0.2	55.4	+ 82 49 34.4	— 20.0	Y.	
25	29.916	57.5	53.1	+ 0 53.0	33 54 4.0	38.8	+ 72 48 21.6	— 17.8	Y.	
26	29.920	57.2	52.0	+ 0 6.0	N. 22 14 49.4	23.7	+ 61 8 51.9	— 14.6	Y.	Corr., +0″.79, applied to mean of A, B, C, D.
27	. .	. .	. .	— 0 5.6	S. 18 59 59.3	20.0	+ 19 53 19.5	— 1.6	Y.	Cloudy; faint.
28	29.920	56.8	50.6	— 1 39.7	62 43 22.0	1 52.1	— 23 51 35.3	+ 10.7	Y.	Cloudy; faint.
29	29.924	56.1	49.6	— 1 30.2	10 28 31.5	10.7	+ 28 24 56.6	— 4.0	Y.	
30	. .	. .	. .	— 0 36.0	S. 23 9 27.6	24.9	+ 15 43 46.3	+ 0.2	Y.	
31	29.922	55.3	50.3	+ 1 36.1	N. 63 28 22.2	1 55.8	+ 77 36 3.2	+ 19.8	Y.	
32	29.926	55.1	51.0	+ 0 51.6	42 59 4.1	54.0	+ 81 53 36.9	— 16.6	Y.	
33	29.926	54.2	47.6	— 0 12.3	34 35 5.9	40.3	+ 73 29 25.0	— 13.3	Y.	
34	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
35	30.105	54.2	49.4	+ 0 55.3	33 54 3.5	39.3	+ 72 48 21.6	— 18.2	Y.	
36	30.108	54.2	49.0	+ 0 6.4	22 14 49.6	24.0	+ 61 8 52.3	— 15.0	Y.	Corr., +0″.38, applied to mean of A, B, C, D.
37	30.107	53.8	48.7	+ 2 28.9	25 52 29.5	28.4	+ 64 46 36.7	— 15.7	Y.	
38	30.115	53.7	48.5	— 1 0.7	N. 41 35 59.4	52.0	+ 80 30 30.2	— 19.0	Y.	
39	. .	. .	. .	— 1 44.2	S. 25 8 17.8	27.6	+ 13 44 53.4	+ 0.4	Y.	Northward and fainter of two with same R. A.
40	30.124	53.2	47.8	+ 0 34.1	S. 66 10 39.6	2 12.3	— 27 19 13.1	+ 11.3	Y.	
41	30.124	53.2	47.1	+ 1 1.6	N. 70 8 54.5	2 41.6	+ 70 54 45.1	+ 21.0	Y.	
42	. .	. .	. .	— 0 40.1	S. 73 39 24.5	3 18.2	— 34 49 3.9	+ 12.2	Y.	No star north.
43	30.118	52.4	45.8	+ 1 5.2	N. 71 3 54.5	2 50.3	+ 69 59 36.4	+ 20.0	Y.	
44	. .	. .	. .	— 3 4.9	S. 78 51 59.5	4 51.2	— 40 3 11.9	+ 12.2	Y.	
45	30.122	52.0	46.0	— 0 42.6	78 54 21.7	4 52.3	— 40 5 35.2	+ 12.2	Y.	
46	. .	. .	. .	— 3 7.6	79 1 57.8	4 55.4	— 40 13 14.4	+ 11.9	Y.	
47	30.116	51.5	46.5	— 1 28.5	S. 74 58 35.3	3 36.0	— 36 8 32.5	+ 11.2	Y.	
48	30.114	51.3	46.2	+ 1 48.5	N. 44 18 7.3	57.5	+ 83 12 43.6	— 14.2	Y.	
49	30.116	51.2	46.1	+ 1 5.8	76 33 50.6	4 2.0	+ 64 28 28.6	+ 16.9	Y.	
50	30.108	51.2	45.7	+ 0 42.8	27 29 11.3	30.7	+ 66 23 20.8	— 9.8	Y.	
51	30.108	51.0	45.6	— 1 31.9	60 21 31.3	1 43.3	+ 80 43 6.6	+ 14.6	Y.	
52	30.100	50.7	46.0	+ 2 19.0	23 32 33.5	25.7	+ 62 26 38.0	— 7.4	Y.	
53	30.094	50.5	46.2	+ 2 19.6	66 22 36.7	2 13.9	+ 74 41 30.6	+ 13.3	Y.	
54	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
55	30.108	48.8	44.7	+ 0 53.3	33 54 3.4	39.7	+ 72 48 21.9	— 18.4	Y	
56	30.106	48.8	44.4	— 0 20.5	N. 63 45 16.6	2 0.1	+ 77 19 4.5	+ 22.6	Y.	
57	. .	. .	. .	+ 2 14.1	S. 67 7 21.8	2 19.3	— 28 16 2.3	+ 12.1	Y.	
58	. .	. .	. .	+ 2 32.2	73 2 35.7	3 11.8	— 34 12 8.7	+ 13.2	Y.	
59	30.106	48.6	44.0	+ 3 21.6	73 3 25.1	3 12.0	— 34 12 58.3	+ 13.2	Y.	
60	. .	. .	. .	— 1 11.6	80 3 54.6	5 26.7	— 41 15 42.5	+ 14.1	Y.	
61	. .	. .	. .	— 0 37.0	80 4 29.3	5 27.3	— 41 16 17.8	+ 14.1	Y.	
62	. .	. .	. .	— 1 58.0	80 3 8.3	5 26.8	— 41 14 56.3	+ 14.0	Y.	
63	30.120	48.2	42.5	+ 3 48.4	S. 80 8 54.7	5 30.1	— 41 20 46.0	+ 14.0	Y.	
64	30.116	48.0	41.3	+ 1 50.9	N. 25 8 3.3	27.9	+ 64 2 10.1	— 14.7	Y.	
65	30.118	48.0	41.1	+ 1 4.8	N. 70 8 50.6	2 43.5	+ 70 54 47.1	+ 21.2	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						°	′	″	″	″	″	″	″	″	r.	r.	r.
1872.																	
Apr. 4	1	Lacaille 3802. . .	7.5	2	III, VII.	88	50	3.0	3.9	8.8	8.8	6.8	4.4	5.95	30.857	−0.611	30.265
	2	O. Arg. S. 9661 . .	8.3	1	IX.	"	"	"	"	"	"	"	"	"	35.043	. .	34.458
	3	O. Arg. S. 9914 . .	. .	2	V, VIII.	82	45	1.2	1.7	5.9	7.0	3.9	1.4	3.52	26.094	. .	25.490
	4	Lacaille 4030. . .	6.5	3	III–VII.	95	55	3.0	5.3	8.6	9.2	6.2	3.9	6.03	35.676	. .	35.072
	5	O. Arg. S. 10227. .	9.0	3	V–IX.	86	45	3.8	4.4	9.2	10.7	6.5	3.9	6.42	30.379	. .	29.783
	6	Anon. $9^h\ 56^m\ 50^s$.	9.0	3	III–VII.	45	25	1.7	2.2	7.8	6.8	5.3	2.0	4.30	34.130	. .	33.509
	7	Lacaille 4196. . .	6.0	3	III–VII.	91	15	2.9	4.3	8.9	9.6	4.8	2.2	5.45	30.929	. .	30.324
	8	B. A. C. 3528. . .	. .	3	IV½–VI½.	335	40	3.0	3.1	10.8	8.8	6.8	3.1	5.93	27.153	. .	26.537
	9	B. A. C. 3592. . .	6.5	3	III–VII.	56	45	3.8	2.8	7.9	9.2	6.2	3.6	5.58	32.799	. .	32.173
	10	B. A. C. 3630. . .	5.0	2	I, IX.	97	45	3.9	6.6	9.5	11.0	7.2	3.7	6.98	33.810	. .	33.239
	11	Anon. $10^h\ 29^m\ 15^s$.	8.5	3	IV–VI.	"	"	"	"	"	"	"	"	"	35.274	. .	34.665
	12	Weisse 716 . . .	9.2	2	VII, IX.	46	20	1.8	3.1	7.8	8.0	4.8	1.0	4.42	32.990	. .	32.371
	13	Weisse (2) 1174 . .	9.0	3	V–IX.	14	45	1.5	2.3	7.8	8.1	3.8	0.0	3.92	35.269	. .	34.637
	14	*o* Cephei, S. P. . . .	. .	3	IV–VI.	306	20	0.5	0.0	5.9	4.8	1.7	58.0	1.82	27.581	. .	27.267
	15	Nadir	. .	.	. .	199	59	58.7	58.8	63.8	65.7	59.2	58.4	60.77	30.491	. .	. .
5	16	B. A. C. 2749. . .	. .	3	IV½–V½.	346	5	2.7	0.4	9.1	4.5	6.2	3.0	4.32	28.971	−0.625	28.344
	17	*κ* Cephei, S. P. . .	. .	2	V½, VI.	316	15	2.7	57.7	6.9	2.0	4.9	2.3	2.75	31.230	. .	30.618
	18	O. Arg. S. 8581 . .	9.0	3	III–VII.	86	0	1.8	0.4	5.8	5.9	4.8	2.2	3.48	30.471	. .	29.851
	19	B. A. C. 2910. . .	. .	3	III–VII.	84	50	2.2	0.2	6.9	6.4	5.3	3.8	4.13	30.721	. .	30.101
	20	B. A. C. 2930. . .	. .	3	IV–VI.	338	25	5.2	2.3	11.2	6.9	7.9	3.2	6.12	32.727	. .	32.098
	21	Anon. $8^h\ 45^m\ 23^s$.	7.5	3	V–IX.	94	15	1.8	59.8	4.8	3.9	4.5	1.0	2.63	25.593	. .	24.982
	22	Gr.12-yr.Cat.1879,S.P.	. .	3	IV½–V½.	319	0	2.4	57.3	6.8	1.8	3.2	1.0	2.08	32.018	. .	31.397
	23	*τ* Ursæ Majoris . .	. .	3	IV½–V½.	354	50	5.1	6.2	12.0	7.9	9.0	5.6	7.63	27.179	. .	26.552
	24	Lalande 18362 . .	6.0	3	III–VII.	20	10	3.0	2.2	8.9	5.6	6.7	3.2	4.93	31.205	. .	30.572
	25	Anon. $9^h\ 17^m\ 43^s$.	. .	3	V–IX.	93	50	2.6	3.1	6.9	6.1	6.3	2.8	4.63	32.867	. .	32.256
	26	Anon. $9^h\ 30^m\ 58^s$.	. .	2	V, IX.	82	50	3.1	1.8	5.6	5.7	4.8	2.1	3.85	35.778	. .	35.163
	27	78 Draconis, S. P. .	. .	3	IV–VI.	310	40	3.8	1.2	8.1	5.0	5.2	3.3	4.43	30.913	. .	30.297
	28	79 Draconis, S. P. .	. .	3	IV–VI.	312	0	5.2	1.8	9.2	6.2	6.6	3.6	5.43	27.811	. .	27.196
	29	B. A. C. 3495. . .	5.5	3	1–5.	334	0	1.7	59.3	6.7	3.7	3.7	59.0	2.35	29.903	. .	29.277
	30	Nadir	. .	.	. .	200	0	0.2	58.8	4.1	4.7	1.2	1.9	1.82	30.538	. .	. .
10	31	Lalande 17053 . .	8.0	3	V–IX.	52	40	4.0	59.2	5.4	2.1	6.7	7.2	4.10	31.519	−0.656	30.860
	32	Lacaille 3561. . .	7.8	3	III–VII.	101	10	2.2	56.5	2.2	59.1	1.7	2.8	0.75	32.648	. .	32.001
	33	Gr.12-yr.Cat.1879,S.P.	. .	3	IV½–V½.	319	0	3.9	55.7	5.3	58.3	3.8	3.9	1.82	32.194	. .	31.542
	34	*ε* Ursæ Majoris . .	. .	3	IV–VI.	356	55	4.8	2.4	10.2	6.0	7.8	oblit.	6.82	27.253	. .	26.591
	35	Dorpat 1343, (1st *).	8.7	1	IX.	53	15	4.9	59.4	4.7	2.0	4.8	6.2	3.67	34.324	. .	33.663
	36	Dorpat 1343, (2d *).	9.2	2	IV, VI.	"	"	"	"	"	"	"	"	"	35.196	. .	34.540
	37	Anon. $9^h\ 30^m\ 58^s$.	9.3	3	III–VII.	82	45	2.8	57.7	3.5	2.0	2.6	4.1	2.12	25.542	. .	24.890
	38	Anon. $9^h\ 32^m\ 49^s$.	9.2	3	IV–VI.	"	"	"	"	"	"	"	"	"	35.511	. .	34.856
	39	Weisse (2) 980 . .	7.0	2	I, IX.	43	35	4.2	59.7	4.9	1.2	4.5	5.2	3.28	34.840	. .	34.171
	40	Anon. $9^h\ 46^m\ 26^s$.	8.8	2	V, VIII.	"	"	"	"	"	"	"	"	"	32.388	. .	31.728
	41	Anon. $9^h\ 55^m\ 55^s$.	9.0	3	III–VII.	45	25	5.1	59.2	6.6	2.6	5.8	6.2	4.25	30.266	. .	29.608
	42	Anon. $9^h\ 56^m\ 40^s$.	8.0	2	VIII, IX.	"	"	"	"	"	"	"	"	"	33.970	. .	33.303
	43	*γ* Leonis, (2d *) . .	. .	3	III–VII.	38	35	4.8	0.4	6.7	2.5	6.5	7.8	4.78	32.615	. .	31.955
	44	B. A. C. 3592. . .	6.5	3	III–VII.	56	45	4.9	0.0	5.8	3.0	6.5	8.5	4.78	32.687	. .	32.031
	45	Anon. $10^h\ 28^m\ 43^s$.	8.0	3	III–VII.	96	20	3.2	59.4	5.8	3.6	5.7	5.7	3.90	34.353	. .	33.704
	46	Lacaille 4438. . .	7.8	3	III–VII.	"	"	"	"	"	"	"	"	"	34.126	. .	33.477
	47	O. Arg. S. 10941. .	8.5	3	III–VII.	88	20	3.9	0.8	5.4	2.8	4.7	6.1	3.95	27.661	. .	27.010
	48	*α* Ursæ Majoris . .	. .	3	IV–VI.	356	25	3.2	59.7	7.4	3.7	4.8	6.2	4.17	26.193	. .	25.531
	49	Anon. $11^h\ 1^m\ 0^s$ . .	7.0	3	III–VII.	91	45	3.6	0.1	5.2	3.7	5.3	5.0	3.82	35.147	. .	34.497
	50	*ξ* Ursæ Majoris . .	. .	3	III–VII.	26	40	4.4	1.6	5.8	4.1	6.2	6.5	4.77	33.556	. .	32.895
	51	Lacaille 4777. . .	6.7	3	III–VII.	94	20	3.9	59.7	4.9	3.7	5.5	4.7	3.73	29.723	. .	29.074
	52	Anon. $11^h\ 27^m\ 57^s$.	7.5	3	IV–VI.	"	"	"	"	"	"	"	"	"	30.290	. .	29.636
	53	Lacaille 4824. . .	8.0	2	VII, IX.	97	25	5.1	3.8	9.9	6.3	8.2	8.1	6.90	36.796	. .	36.163
	54	B. A. C. 8273, S. P. .	. .	3	IV–VI.	306	0	3.7	56.5	4.5	59.2	2.8	4.1	1.80	26.046	. .	25.397
	55	Nadir	. .	.	. .	200	0	2.9	58.4	4.7	3.0	2.2	6.2	2.90	30.605	. .	. .
13	56	Lacaille 3509. . .	. .	3	III–VII.	85	0	2.4	57.5	4.7	3.3	2.9	6.2	2.83	29.528	−0.650	28.883
	57	O. Arg. S. 9127 . .	8.5	3	III–VII.	89	35	4.5	1.1	4.8	3.0	3.2	5.9	3.75	27.142	. .	26.498
	58	B. A. C. 3107. . .	7.7	3	III–VII.	43	10	2.9	57.8	4.5	1.4	3.2	4.8	2.43	31.759	. .	31.106
	59	*ε* Ursæ Majoris . .	. .	3	IV–VI.	356	55	3.9	59.5	8.2	4.1	5.3	oblit.	4.42	27.174	. .	26.518
	60	Dorpat 1343, (2d *) .	9.2	2	VIII, IX.	53	15	2.4	55.9	2.1	0.6	1.8	3.4	1.03	35.181	. .	34.525
	61	*β* Cephei, S. P. . . .	. .	3	IV½–V½.	308	55	3.1	54.8	3.0	57.8	1.5	1.5	0.28	28.783	. .	28.135
	62	Anon. $9^h\ 32^m\ 49^s$.	9.3	3	III–VII.	82	45	4.1	58.9	4.7	3.9	2.4	4.1	3.02	35.651	. .	35.005
	63	Lacaille 4052. . .	7.3	3	V–IX.	91	15	4.1	0.3	4.8	3.8	2.9	4.9	3.47	32.917	. .	32.279
	64	B. A. C. 7678, S. P. .	. .	3	IV½–V½.	318	35	3.8	56.2	5.8	59.7	1.7	3.9	1.85	26.878	. .	26.232
	65	32 Ursæ Majoris . .	. .	3	IV–VI.	353	10	4.8	1.7	9.2	6.3	5.9	8.0	5.98	32.481	. .	31.824
	66	O. Arg. S. 10594 .	7.5	3	III–VII.	88	30	3.3	59.5	4.8	3.4	2.8	5.1	3.15	31.569	−0.650	30.924

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	. .	. .	. .	− 0 8.3	S. 68 49 57.6	2 32.7	− 29 58 51.5	+ 11.7	Y.	
2	. .	. .	. .	− 2 19.5	68 47 46.5	2 32.6	− 29 56 40.3	+ 11.7	Y.	
3	30.116	47.7	39.7	+ 2 21.1	62 47 24.6	1 55.7	− 23 55 41.5	+ 10.3	Y.	Faint.
4	. .	. .	39.3	− 2 38.7	75 52 27.3	3 53.5	− 37 2 42.0	+ 12.2	Y.	
5	. .	. .	. .	+ 0 6.8	66 45 13.2	2 18.5	− 27 53 52.9	+ 10.7	Y.	
6	. .	. .	. .	− 1 49.8	25 23 14.5	28.4	+ 13 29 55.9	+ 1.5	Y.	
7	30.120	47.0	37.7	− 0 10.1	S. 71 14 55.3	2 55.1	− 32 24 11.6	+ 11.0	Y.	
8	30.120	47.0	37.2	+ 1 48.4	N. 44 18 5.7	58.6	+ 83 12 43.1	− 14.6	Y.	
9	. .	. .	. .	− 1 8.0	S. 36 43 57.1	44.8	+ 2 8 56.4	+ 4.7	Y.	
10	. .	. .	. .	− 1 41.4	77 43 25.6	29.7	− 38 54 16.5	+ 11.1	Y.	
11	30.122	46.3	37.0	− 2 26.0	77 42 41.0	29.4	− 38 53 31.6	+ 11.1	Y.	
12	. .	. .	. .	− 1 14.2	S. 26 18 50.2	29.7	+ 12 34 18.9	+ 2.7	Y.	Faint.
13	30.129	45.7	36.8	− 2 25.1	N. 5 17 21.2	5.6	+ 44 11 5.6	− 3.7	Y.	
14	30.128	45.2	36.4	+ 1 25.5	73 38 32.6	3 22.4	+ 67 24 26.2	+ 13.5	Y.	
15	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
16	30.112	52.2	48.0	+ 0 51.8	33 54 2.9	39.5	+ 72 48 21.2	− 18.4	Y.	
17	30.118	52.2	47.5	− 0 19.3	N. 63 45 16.6	1 58.7	+ 77 19 5.9	+ 22.7	Y.	
18	. .	. .	. .	+ 0 4.7	S. 66 0 8.1	2 11.5	− 27 8 40.8	+ 12.0	Y.	
19	. .	. .	. .	− 0 3.2	S. 64 50 1.0	2 4.8	− 25 58 27.0	+ 11.6	Y.	
20	30.134	51.7	46.0	− 1 5.7	N. 41 35 59.5	52.3	+ 80 30 30.6	− 19.2	Y.	
21	. .	. .	. .	+ 2 37.0	S. 74 17 39.6	3 27.1	− 35 27 27.9	+ 13.3	Y.	
22	30.140	51.2	45.0	− 0 43.7	N. 61 0 41.6	1 46.3	+ 80 3 53.3	+ 21.3	Y.	
23	30.144	51.1	45.0	+ 1 47.9	N. 25 8 4.5	27.7	+ 64 2 10.9	− 14.8	Y.	
24	. .	. .	. .	− 0 17.9	S. 0 9 47.0	0.2	+ 38 43 51.6	− 7.2	Y	
25	30.146	50.8	44.7	− 1 10.6	73 48 54.0	3 21.2	− 34 58 36.4	+ 12.6	Y.	
26	30.152	50.5	44.2	− 2 41.6	S. 62 47 22.3	1 54.7	− 23 55 38.2	+ 10.5	Y.	Faint.
27	30.148	50.3	43.8	− 0 9.3	N. 69 20 4.9	2 35.9	+ 71 43 40.4	+ 19.6	Y.	
28	30.150	50.1	43.4	+ 1 27.8	67 58 26.8	2 25.7	+ 73 5 28.7	+ 19.0	Y.	
29	30.146	50.0	43.0	+ 0 22.6	N. 45 59 35.0	1 1.4	+ 84 54 15.2	− 15.3	Y.	
30	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
31	29.956	64.2	62.2	− 0 26.9	S. 32 39 37.2	36.4	+ 6 13 25.2	+ 2.5	Y.	
32	. .	. .	. .	− 1 2.6	S. 81 8 58.1	5 48.6	− 42 21 7.9	+ 14.8	Y.	
33	29.974	64.2	61.2	− 0 48.2	N. 61 0 46.4	1 42.3	+ 80 3 52.5	+ 21.8	Y.	
34	29.976	64.2	61.2	+ 1 46.7	N. 23 3 6.5	24.2	+ 61 57 9.5	− 14.8	Y.	Corr., +0″.97, applied to mean of A, B, C, D.
35	. .	. .	. .	− 1 54.6	S. 33 13 9.1	37.3	+ 5 39 52.4	+ 3.0	Y.	
36	. .	. .	. .	− 2 22.0	33 12 41.6	37.3	+ 5 40 19.9	+ 3.0	Y.	
37	. .	. .	. .	+ 2 39.9	62 47 42.0	1 50.4	− 23 55 53.6	+ 10.9	Y.	
38	29.996	63.8	60.9	− 2 32.0	62 42 30.2	1 50.0	− 23 50 41.4	+ 10.9	Y.	
39	. .	. .	. .	− 2 10.5	23 32 52.8	24.8	+ 15 20 21.2	+ 0.5	Y.	
40	. .	. .	. .	− 0 54.0	23 34 9.2	24.9	+ 15 19 4.7	+ 0.5	Y.	
41	. .	. .	. .	+ 0 12.3	25 25 16.5	27.1	+ 13 27 55.2	+ 1.2	Y.	
42	30.000	63.5	60.8	− 1 43.4	25 23 20.9	27.0	+ 13 29 50.9	+ 1.2	Y.	
43	. .	. .	. .	− 1 1.2	18 34 3.6	19.2	+ 20 19 16.0	− 0.4	Y.	
44	. .	. .	. .	− 1 3.5	36 44 1.2	42.5	+ 2 8 55.1	+ 4.7	Y.	
45	30.016	63.3	60.6	− 1 55.9	76 18 8.0	3 49.6	− 37 28 18.8	+ 12.1	Y.	
46	. .	. .	. .	− 1 48.8	76 18 15.1	3 49.7	− 37 28 26.0	+ 11.8	Y.	
47	. .	. .	. .	+ 1 33.6	S. 68 21 37.5	2 22.9	− 29 30 21.6	+ 10.7	Y.	
48	30.016	63.1	59.7	+ 2 19.8	N. 23 32 36.0	24.9	+ 62 26 39.7	− 9.2	Y.	
49	. .	. .	. .	− 2 20.7	S. 71 42 43.1	2 51.1	− 32 51 55.4	+ 10.8	Y.	
50	. .	. .	. .	− 1 30.6	6 38 34.2	6.7	+ 32 14 57.9	− 2.0	Y.	
51	. .	. .	. .	+ 0 29.0	74 20 32.7	3 21.2	− 35 30 15.1	+ 10.3	Y.	
52	30.022	62.9	59.2	+ 0 11.4	74 20 15.1	3 21.1	− 35 29 57.4	+ 10.2	Y.	
53	. .	. .	. .	− 3 12.8	S. 77 21 54.1	4 9.5	− 38 32 24.8	+ 10.3	Y.	
54	30.028	62.7	58.5	+ 2 24.0	N. 73 57 34.2	3 16.6	+ 67 5 30.4	+ 12.6	Y.	
55	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
56	30.064	66.7	63.1	+ 0 35.0	S. 65 0 37.8	2 1.4	− 26 9 0.4	+ 11.8	Y.	
57	. .	. .	. .	+ 1 49.6	69 36 53.3	2 31.9	− 30 45 46.4	+ 12.8	Y.	
58	. .	. .	. .	− 0 34.6	S. 23 9 27.8	24.4	+ 15 43 46.6	− 0.7	Y.	
59	30.080	66.3	61.2	+ 1 49.0	N. 23 3 6.6	24.3	+ 61 57 9.7	− 15.2	Y.	Faint. Corr., +0″.50, applied to mean of A, B, C, D.
60	. .	. .	. .	− 2 21.6	S. 33 12 39.4	37.4	+ 5 40 22.0	+ 2.8	Y.	
61	30.080	65.7	60.2	+ 0 58.4	N. 71 4 1.4	2 45.1	+ 69 59 34.7	+ 21.5	Y.	
62	. .	. .	. .	− 2 36.6	S. 62 42 26.4	1 50.6	− 23 50 38.2	+ 10.9	Y.	
63	. .	. .	59.3	− 1 11.3	S. 71 13 52.2	2 47.0	− 32 23 0.4	+ 12.5	Y.	
64	30.084	65.0	58.5	+ 1 57.9	N. 61 23 0.3	1 44.8	+ 79 41 36.1	+ 19.6	Y.	
65	30.080	64.2	57.2	− 0 57.1	N. 26 50 51.1	29.1	+ 65 44 59.0	− 13.5	Y.	
66	. .	. .	. .	− 0 28.9	S. 68 29 34.2	2 25.0	− 29 38 20.4	+ 11.5	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						°	′	″	″	″	″	″	″	″	r.	r.	r.
1872.																	
Apr. 13	1	B. A. C. 3630. . .	5.0	3	III–VII.	97	45	3.4	59.4	4.7	3.2	3.3	4.6	3.10	33.340	−0.650	32.698
	2	Anon. $11^h\ 1^m\ 1^s$. .	. .	3	III–VII.	91	45	3.8	1.2	5.9	5.2	3.8	4.9	4.13	35.227	. .	34.583
	3	Weisse XI, 182 . .	8.0	3	III–VII.	22	45	3.9	1.7	6.9	5.0	4.9	5.9	4.72	30.841	. .	30.184
	4	Weisse XI, 200 . .	6.0	2	VII, IX.	"	"	"	"	"	"	"	"	"	36.142	. .	35.467
	5	Lacaille 4777. . .	. .	2	V, VII.	94	20	4.3	1.4	5.8	6.9	5.3	5.8	4.92	29.728	. .	29.083
	6	Anon. $11^h\ 27^m\ 58^s$.	. .	3	IV–VI.	"	"	"	"	"	"	"	"	"	30.315	. .	29.667
	7	Anon. $11^h\ 37^m\ 17^s$.	8.3	3	IV–VI.	87	50	5.2	2.8	7.1	8.0	4.4	7.2	5.78	31.704	. .	31.056
	8	Anon. $11^h\ 47^m\ 25^s$.	9.5	3	III–VII.	57	50	3.0	0.8	5.8	5.9	4.2	7.0	4.45	31.284	. .	30.634
	9	Nadir	. .	.	. .	200	0	4.8	1.8	7.2	8.0	3.7	7.9	5.57	30.684	. .	. .
17	10	26 Hydræ	. .	3	III–VII.	70	20	1.2	2.2	5.5	6.9	3.3	3.9	3.83	33.158	−0.620	32.540
	11	β Cephei, S. P. . .	. .	3	IV–VI.	308	55	1.6	57.8	4.8	2.4	2.9	0.5	1.67	28.631	. .	28.019
	12	28 Ursæ Majoris . .	. .	3	IV–VI.	354	40	4.1	4.8	10.9	8.0	8.5	5.8	7.02	31.990	. .	31.364
	13	Moon, N.	. .	3	III–VII.	40	5	3.9	1.9	6.4	7.9	4.6	5.5	5.03	25.261	. .	24.638
	14	79 Draconis, S. P. . .	. .	3	IV–VI.	312	0	5.9	2.8	9.8	8.2	6.3	5.4	6.40	27.908	. .	27.298
	15	32 Ursæ Majoris . .	. .	3	IV–VI.	353	10	4.8	4.5	11.9	11.5	8.4	6.8	8.00	32.524	. .	31.897
	16	Nadir	. .	.	. .	200	0	1.5	59.5	4.3	7.5	0.2	3.2	2.70	30.564	. .	. .
	17	Nadir	. .	.	. .	199	55	0.0	58.8	3.1	6.2	0.0	1.8	1.65	20.936	. .	. .
	18	Nadir	. .	.	. .	200	0	0.1	0.2	3.2	7.5	0.2	2.1	2.22	30.545	. .	. .
	19	Nadir	. .	.	. .	300	5	1.8	2.8	5.9	8.7	2.8	3.2	4.20	40.197	. .	. .
	20	Nadir	. .	.	. .	200	0	2.0	1.8	5.3	8.2	2.2	3.8	3.88	30.605	. .	. .
19	21	Anon. $9^h\ 17^m\ 33^s$.	7.5	3	V–IX.	93	50	0.4	56.8	1.8	1.8	2.1	2.4	0.88	32.468	−0.631	31.851
	22	Anon. $9^h\ 32^m\ 46^s$.	7.5	1	IX.	95	15	2.2	58.2	3.7	3.3	2.3	2.8	2.08	37.365	. .	36.767
	23	Anon. $9^h\ 41^m\ 21^s$.	9.3	1	IX.	98	55	3.1	2.4	4.1	4.2	4.5	5.1	3.90	31.724	. .	31.112
	24	Anon. $9^h\ 43^m\ 8^s$.	8.5	2	V, IX.	"	"	"	"	"	"	"	"	"	35.712	. .	35.120
	25	Anon. $9^h\ 50^m\ 47^s$.	6.5	3	III–VII.	99	5	5.2	3.8	6.8	6.6	6.0	6.0	5.73	36.368	. .	35.745
	26	ξ Cephei. S. P.. . .	. .	3	IV–VI.	302	55	2.0	57.8	5.9	2.0	3.5	2.0	2.20	25.659	. .	25.034
	27	Lacaille 4196. . .	6.0	3	III–VII.	91	15	4.9	3.8	7.1	6.9	5.7	6.9	5.88	30.595	. .	29.970
	28	Lalande 20114 . .	5.5	3	III–VII.	81	55	3.7	0.8	5.2	5.8	4.2	5.1	4.13	28.693	. .	28.066
	29	B. A. C. 3630 . .	. .	3	III–VII.	97	45	4.5	1.8	6.1	5.4	5.3	6.1	4.87	33.391	. .	32.768
	30	Lacaille 4412. . .	8.3	3	IV–VI.	98	50	1.8	0.8	4.1	3.1	3.9	2.3	2.67	29.689	. .	29.060
	31	O. Arg. S. 10941. .	8.5	3	III–VII.	88	20	2.1	0.2	4.0	3.9	2.7	3.0	2.65	27.645	. .	27.019
	32	α Ursæ Majoris . .	. .	3	IV–VI.	356	25	3.9	3.2	8 5	7.8	4.9	5.9	5.70	26.265	. .	25.628
	33	Weisse (2) 182 . .	8.3	3	IV–VI.	22	45	4.2	3.6	7.2	6.3	6.3	7.1	5.78	30.869	. .	30.236
	34	Weisse (2) 200 . .	6.3	2	VII, IX.	"	"	"	"	"	"	"	"	"	36.174	. .	35.522
	35	Moon, N.	. .	3	III–VII.	49	20	5.0	2.1	7.0	6.8	6.8	7.6	5.88	26.307	−0.339	25.966
	36	Lacaille 4824. . .	8.0	3	IV–VI.	97	20	2.2	1.8	6.6	4.8	4.2	4.5	4.02	26.903	−0.631	26.274
	37	Anon. $11^h\ 44^m\ 8^s$.	8.2	3	IV–VI.	95	50	2.8	3.5	6.4	7.7	5.1	5.2	5.12	34.233	. .	33.604
	38	B. A. C. 4020. . .	7.3	3	III–VII.	61	55	4.9	3.3	6.8	7.1	6.7	7.2	6.00	27.647	. .	27.017
	39	B. A. C. 105, S. P. . .	. .	3	IV½–V½.	315	15	1.3	57.9	4.2	1.4	2.9	2.1	1.63	32.112	. .	31.484
	40	6 Draconis	. .	3	V–VI.	348	10	0.0	58.9	6.9	4.0	1.8	2.2	2.30	29.792	. .	29.155
	41	Nadir	. .	.	. .	200	0	0.0	57.8	3.4	3.8	0.2	2.6	1.30	30.527	. .	. .
22	42	Groombridge 1650 . .	. .	3	IV½–V½.	342	30	0.0	59.6	8.1	5.3	3.2	1.7	2.98	27.176	−0.614	26.559
	43	33 Sextantis	6.0	3	III–VII.	59	55	1.2	0.8	5.8	6.0	1.8	4.7	3.38	26.752	. .	26.138
	44	Anon. $11^h\ 2^m\ 1^s$.	8.3	3	III–VII.	99	5	1.4	2.1	5.8	6.3	1.4	2.1	3.18	33.622	. .	33.016
	45	Lacaille 4714. . .	7.7	3	III–VII.	87	45	1.9	0.4	5.9	7.0	1.4	2.9	3.25	30.673	. .	30.064
	46	Lalande 2191. . .	8.0	3	III–VII.	58	35	3.8	4.5	9.8	10.4	5.8	7.9	7.03	30.658	. .	30.044
	47	61 Ursæ Majoris . .	5.5	3	III–VII.	24	0	1.9	0.9	7.2	5.9	2.2	2.4	3.42	34.497	. .	33.876
	48	Anon. $11^h\ 44^m\ 10^s$.	7.7	3	III–VII.	95	50	0.9	2.8	6.9	8.2	2.8	3.4	4.17	34.305	. .	33.698
	49	B. A. C. 8336, S. P. . .	. .	3	2–4.	324	55	1.8	59.8	6.5	4.4	2.0	2.2	2.78	31.710	. .	31.098
	50	4 Draconis, (H.) . .	. .	2	1, 5.	340	35	2.2	1.6	8.6	8.8	2.8	2.7	4.45	31.469	. .	30.854
	51	Anon. $12^h\ 11^m\ 51^s$.	9.3	2	V, IX.	84	45	2.8	4.0	10.2	11.9	5.8	5.6	6.72	34.676	. .	34.073
	52	Nadir	. .	.	. .	200	0	3.2	4.3	8.3	11.2	3.5	5.7	6.03	30.659	. .	. .
	53	Lacaille 5284. . .	6.8	3	V–IX.	90	30	2.9	2.9	7.5	8.9	2.3	2.9	4.57	33.520	. .	32.918
	54	Lacaille 5347. . .	. .	3	III–VII.	101	50	2.3	3.3	6.1	8.6	2.4	1.4	4.02	34.556	. .	33.951
	55	O. Arg. S. 12671 . .	7.0	3	III–VII.	82	0	1.0	0.4	5.8	6.3	0.8	1.1	2.57	30.297	. .	29.687
	56	Polaris, S. P. . . .	. .	3	2–4.	327	30	1.2	1.2	6.8	7.1	1.0	1.0	3.05	26.031	. .	25.418
	57	B. A. C. 4527. . .	. .	3	IV½–V½.	339	35	2.7	4.1	10.6	11.1	3.7	3.5	6.00	28.672	. .	28.054
	58	Lacaille 5635. . .	7.0	2	IV, VI.	85	45	1.6	2.5	7.8	11.1	2.8	2.5	4.72	26.544	. .	25.933
	59	Moon, N.	. .	3	I–III.	66	55	3.5	5.2	10.2	13.6	4.2	5.8	7.08	30.151	. .	29.513
	60	Moon, S.	. .	3	VII–IX.	67	25	3.1	5.8	9.2	14.0	4.8	6.2	7.18	25.336	. .	25.048
24	61	Lacaille 4052. . .	. .	3	III–VII.	91	15	4.1	1.3	5.2	4.7	5.1	6.9	4.55	32.817	−0.587	32.236
	62	B. A. C. 7678, S. P. . .	. .	3	1–5.	318	34	60.1	53.3	60.8	55.9	61.9	60.4	58.73	26.818	. .	26.232
	63	B. A. C. 3495. . .	. .	3	1–5.	334	0	2.7	57.2	4.3	0.2	3.2	2.3	1.65	30.055	. .	29.467
	64	26 Cephei, S. P. . .	. .	2	IV, VI.	303	25	3.5	56.8	5.2	1.8	3.8	3.7	2.47	28.933	. .	28.355
	65	B. A. C. 3652. . .	. .	3	IV–VI.	349	10	5.5	2.8	10.2	6.4	8.4	7.9	6.87	32.230	. .	31.635
	66	37 Sextantis	6.0	3	III–VII.	51	50	3.7	0.4	4.6	4.9	5.6	8.2	4.57	30.240	−0.587	29.652

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	30.084	63.8	57.3	− 1 24.4	S. 77 43 38.7	4 18.4	− 38 54 18.3	+ 12.5	Y.	
2	30.084	63.0	56.6	− 2 23.4	71 42 40.7	2 52.5	− 32 51 54.4	+ 11.1	Y.	
3	. .	. .	. .	− 0 5.8	2 44 59.0	2.8	+ 36 8 37.0	− 2.9	Y.	
4	. .	. .	. .	− 2 51.1	2 42 13.6	2.7	+ 36 11 22.5	− 2.8	Y.	
5	. .	. .	. .	+ 0 28.7	74 20 33.6	3 22.6	− 35 30 17.4	+ 10.7	Y.	
6	30.080	62.8	56.2	+ 0 10.4	74 20 15.4	3 22.6	− 35 29 59.2	+ 10.7	Y.	
7	. .	. .	. .	− 0 33.0	67 49 32.7	2 20.5	− 28 58 14.4	+ 9.9	Y.	
8	. .	. .	. .	− 0 19.8	37 49 44.6	44.8	+ 1 3 9.4	+ 5.9	Y.	Faint.
9	. .	. .	. .		. .	. .	. . . .	. .	Y.	
10	30.024	56.0	48.5	− 1 19.5	S. 50 18 44.4	1 10.4	− 11 26 16.0	+ 8.0	Y.	
11	30.026	55.5	48.2	+ 1 2.0	N. 71 3 56.4	2 48.9	+ 69 59 35.9	+ 21.8	Y.	
12	30.024	55.2	48.0	− 0 42.7	N. 25 20 35.7	+ 27.7	+ 64 14 42.2	− 15.2	Y.	Faint; cloudy.
13	. .	. .	. .	+ 2 47.8	S. 20 7 52.8	− 3 21.6	+ 18 49 7.6	. .	Y.	
14	30.016	54.4	47.5	+ 1 24.5	N. 67 58 29.1	+ 2 23.8	+ 73 5 28.3	+ 20.7	Y.	Faint.
15	30.014	54.0	47.2	− 0 59.4	N. 26 50 51.4	29.7	+ 65 44 59.9	− 14.1	Y.	
16	. .	. .	. .		. .	. .	. . . .	. .	Y.	
17	. .	. .	. .		. .	. .	. . . .	. .	Y.	
18	. .	. .	. .		. .	. .	. . . .	. .	Y.	
19	. .	. .	. .		. .	. .	. . . .	. .	Y.	
20	. .	. .	. .		. .	. .	. . . .	. .	Y.	
21	29.810	59.8	55.3	− 0 57.9	S. 73 49 3.0	3 14.7	− 34 58 38.9	+ 13.8	Y.	
22	. .	. .	. .	− 3 31.8	75 11 30.3	3 33.4	− 36 21 24.9	+ 13.9	Y.	
23	. .	. .	. .	− 0 34.8	78 54 29.1	4 44.6	− 40 5 34.9	+ 14.4	Y.	
24	29.810	59.2	54.0	− 2 40.2	78 52 23.7	4 43.9	− 40 3 28.8	+ 14.4	Y.	
25	29.818	59.0	53.1	− 2 59.8	79 2 6.0	4 48.3	− 40 13 15.5	+ 14.2	Y.	
26	29.826	59.9	53.0	+ 2 35.4	77 2 22.4	4 4.8	+ 63 59 54.0	+ 20.6	Y.	
27	. .	. .	. .	+ 0 0.9	71 15 6.8	2 48.0	− 32 24 16.0	+ 12.8	Y.	
28	. .	. .	. .	+ 1 0.5	61 56 4.6	1 47.6	− 23 4 13.4	+ 10.8	Y.	
29	29.842	58.3	52.6	− 1 26.6	77 43 38.2	4 18.8	− 38 54 18.2	+ 13.4	Y.	
30	. .	. .	. .	+ 0 29.4	78 50 32.1	4 44.1	− 40 1 37.4	+ 13.4	Y.	
31	. .	. .	. .	+ 1 33.3	S. 68 21 35.9	2 24.4	− 29 30 21.5	+ 11.7	Y.	
32	29.844	57.8	51.8	+ 2 16.8	N. 23 32 37.5	25.2	+ 62 26 41.5	− 11.2	Y.	
33	. .	. .	. .	− 0 7.4	S. 2 44 58.4	2.8	+ 36 8 37.6	− 3.8	Y.	
34	. .	. .	. .	− 2 52.8	2 42 13.0	+ 1 2.7	+ 36 11 23.1	− 3.8	Y.	
35	29.846	57.5	52.2	+ 2 6.2	29 22 12.1	−11 28.6	+ 9 42 55.3	. .	Y.	North wire.
36	. .	. .	. .	+ 1 56.6	77 22 0.6	+ 4 11.7	− 38 32 33.5	+ 11.8	Y.	
37	. .	. .	. .	− 1 52.8	75 48 12.3	3 44.5	− 36 58 18.0	+ 11.4	Y.	
38	29.860	57.0	50.9	+ 1 33.3	S. 41 56 39.3	52.0	− 3 3 52.5	+ 6.5	Y.	
39	29.858	56.2	50.4	− 0 46.4	N. 64 45 44.8	2 2.3	+ 76 18 34.1	+ 10.8	Y.	
40	28.860	56.0	50.0	+ 0 26.4	31 49 31.2	36.0	+ 70 43 46.0	− 6.1	Y.	
41	. .	. .	. .		. .	. .	. . . .	. .	Y.	
42	30.036	55.5	47.4	+ 1 47.7	N. 37 28 9.3	44.9	+ 76 22 33.0	− 16.3	Y.	
43	. .	. .	. .	+ 2 0.8	S. 39 57 4.2	49.2	− 1 4 14.6	+ 5.5	Y.	
44	30.058	54.8	46.2	− 1 34.4	79 3 28.8	4 55.6	− 40 14 45.6	+ 13.4	Y.	
45	. .	. .	. .	− 0 2.0	67 45 1.2	2 22.9	− 28 53 45.4	+ 11.5	Y.	
46	. .	. .	. .	− 0 1.4	38 35 5.7	47.0	+ 0 17 46.1	+ 5.6	Y.	
47	. .	. .	. .	− 2 1.3	3 58 2.2	4.1	+ 34 55 32.5	− 2.6	Y.	
48	30.084	54.0	44.7	− 1 55.7	S. 75 48 8.5	3 49.3	− 36 58 19.0	+ 11.9	Y.	
49	30.094	54.0	44.6	− 0 34.4	N. 55 5 31.6	1 24.5	+ 85 59 25.1	+ 12.9	Y.	
50	30.088	53.3	44.3	− 0 26.7	N. 39 25 22.3	48.6	+ 78 19 49.7	− 9.8	Y.	
51	. .	. .	. .	− 2 7.4	S. 64 42 59.3	2 4.6	− 25 51 25.1	+ 10.1	Y.	
52	. .	. .	. .		. .	. .	. . . .	. .	Y.	
53	30.092	52.8	43.2	− 1 31.3	70 28 33.3	2 45.5	− 31 37 40.0	+ 9.9	Y.	
54	. .	. .	43.0	− 2 3.6	81 48 0.4	6 31.2	− 43 0 52.8	+ 9.9	Y.	
55	. .	. .	. .	+ 0 9.8	S. 62 0 12.4	1 51.0	− 23 8 24.6	+ 8.9	Y.	
56	30.090	53.3	43.0	+ 2 23.4	N. 52 27 33.6	1 17.0	+ 88 37 30.5	+ 6.0	Y.	
57	30.088	51.8	42.2	+ 1 1.0	N. 40 23 53.0	50.5	+ 79 18 22.3	− 3.0	Y.	
58	. .	. .	. .	+ 2 7.2	S. 65 47 12.0	+ 2 11.3	− 26 55 44.5	+ 8.4	Y.	
59	. .	. .	. .	+ 0 15.2	46 55 22.3	−41 22.7	− 7 20 20.8	. .	Y.	Observed with north wire.
60	30.090	50.6	41.3	+ 2 34.9	47 27 42.1	−41 40.3	− 7 52 23.0	. .	Y.	Corr. for defective illumination of S. limb = 3s.70.
61	30.004	62.7	61.4	− 1 10.0	S. 71 13 54.6	+ 2 45.9	− 32 23 1.7	+ 13.4	Y.	
62	30.018	62.7	61.2	+ 1 57.9	N. 61 23 3.4	1 44.1	+ 79 41 33.7	+ 20.8	Y.	
63	30.016	62.5	61.0	+ 0 16.7	45 59 41.7	59.0	+ 84 54 19.5	− 18.6	Y.	
64	30.020	62.5	61.2	+ 0 51.4	76 34 6.1	3 53.9	+ 64 28 21.2	+ 20.0	Y.	
65	30.026	62.5	61.2	− 0 51.1	N. 30 50 44.3	34.0	+ 69 44 57.1	− 14.8	Y.	
66	. .	. .	. .	+ 0 10.9	S. 31 50 15.5	35.4	+ 7 2 47.9	+ 3.1	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
1872.						° ′ ″	″	″	″	″	″	″	r.	r.	r.
Apr. 24	1	B. A. C. 3747 . .	. .	3	IV½–V½.	340 25 5.0	0.3	7.1	4.8	7.2	7.9	5.38	27.220	−0.587	26.630
	2	Weisse (2) XI, 15 .	8.3	3	III–VII.	22 50 4.2	0.3	5.3	3.8	6.2	7.9	4.62	27.324	. .	26.730
	3	B. A. C. 8213, S. P. .	. .	3	1–5.	325 30 4.1	58.9	6.1	2.3	6.9	6.7	4.17	29.233	. .	28.648
	4	Anon. $11^h\ 33^m\ 20^s$.	6.5	3	III–VII.	57 15 oblit.	4.3	9.5	9.1	10.1	13.1	9.37	34.134	. .	33.547
	5	B. A. C. 4020. . .	. .	3	III–VII.	61 55 3.2	0.4	5.1	4.0	5.6	6.7	4.17	27.550	. .	26.964
	6	B. A. C. 4050. . .	. .	3	1–5.	337 20 2.7	56.4	5.9	0.2	3.1	4.9	2.20	30.147	. .	29.559
	7	B. A. C. 39, S. P. . .	. .	3	IV½–V½.	315 10 3.4	56.1	6.1	1.1	5.3	5.6	2.93	31.065	. .	30.481
	8	B. A. C. 4165 . . .	. .	3	2–4.	330 30 7.1	1.8	11.1	8.0	9.8	10.0	7.97	30.844	. .	30.256
	9	B. A. C. 105, S. P. .	. .	3	IV½–V½.	315 15 3.3	57.4	5.1	0.9	4.2	3.9	2.47	32.185	. .	31.601
	10	Lacaille 5239. . .	6.5	3	III–VII.	85 55 4.0	0.2	5.8	5.0	5.2	5.9	4.35	35.960	. .	35.378
	11	Lacaille 5284. . .	6.5	3	III–VII.	90 30 4.2	1.5	5.1	4.3	5.2	6.3	4.43	33.310	. .	32.729
	12	9 Draconis	. .	3	IV½–V½.	351 35 1.2	59.2	5.9	2.0	4.7	4.1	2.85	27.255	. .	26.666
	13	Polaris, S. P. . . .	. .	3	1–5.	327 30 2.2	57.1	4.8	1.7	3.8	3.1	2.12	26.080	. .	25.498
	14	Nadir	. .	.	. .	200 5 3.0	59.0	4.9	3.6	2.8	6.0	3.22	40.119	. .	. .
	15	Nadir	. .	.	. .	200 0 1.1	57.9	3.2	1.9	1.1	4.4	1.60	30.492	. .	. .
	16	Nadir	. .	.	. .	199 55 0.2	55.5	0.9	0.8	0.2	3.2	0.13	20.848	. .	. .
29	17	B. A. C. 7678, S. P. .	. .	3	IV–VI.	318 35 0.6	56.2	4.9	0.2	5.8	0.9	1.43	26.688	−0.440	26.263
	18	B. A. C. 3495 . . .	. .	3	1–5.	334 0 2.0	57.2	5.8	3.0	0.2	0.9	1.52	29.904	. .	29.463
	19	B. A. C. 7810, S. P. .	. .	3	IV–VI.	305 0 2.9	56.4	6.7	4.2	1.4	3.9	2.58	29.741	. .	29.308
	20	38 Ursæ Majoris . .	. .	3	IV–VI.	352 30 1.9	58.3	5.6	4.2	0.1	2.5	2.10	29.129	. .	28.682
	21	Weisse 637	. .	3	III–VII.	62 35 0.9	57.2	2.4	3.4	58.3	2.2	0.73	26.463	. .	26.024
	22	ι Cephei, S. P. . . .	5.0	3	IV½–V½.	304 30 2.7	55.2	5.8	3.1	0.2	3.1	1.68	33.126	. .	32.688
	23	α Ursæ Majoris . . .	. .	3	IV–VI.	356 30 5.9	3.7	11.3	10.2	5.4	7.0	7.25	35.771	. .	35.325
	24	Lacaille 4714. . .	8.5	3	III–VII.	87 45 4.9	1.8	6.9	8.8	3.2	6.8	5.40	30.387	. .	29.952
	25	Lacaille 4777. . .	6.6	3	III–VII.	94 20 3.7	0.2	5.8	7.8	2.2	4.5	4.03	29.483	. .	29.050
	26	Anon. $11^h\ 28^m\ 3^s$.	7.0	3	V–IX.	" " "	"	"	"	"	"	"	30.017	. .	29.591
	27	61 Ursæ Majoris . .	5.8	3	III–VII.	24 0 2.9	0.2	6.5	6.2	2.2	4.8	3.80	34.382	. .	33.935
	28	B. A. C. 4050. . .	. .	3	IV½–V½.	337 20 1.9	57.2	6.9	3.0	59.5	2.9	1.90	29.961	. .	29.516
	29	Lalande 22934, (1st*)	7.7	2	III, V.	25 25 4.8	4.1	8.3	9.4	2.6	5.7	5.82	33.102	. .	32.658
	30	Lalande 22934, (2d *)	9.0	2	VII, IX.	" " "	"	"	"	"	"	"	33.135	. .	32.673
	31	B. A. C. 105, S. P. .	. .	3	IV½–V½.	315 15 3.2	59.0	7.0	5.0	1.7	4.8	3.45	32.023	. .	31.586
	32	κ Draconis	. .	3	IV–VI.	348 25 4.9	2.9	11.8	9.8	4.4	6.8	6.77	31.735	. .	31.287
	33	Anon. $12^h\ 44^m\ 45^s$.	9.0	3	III–VII.	84 0 3.7	0.9	6.8	9.9	1.8	5.0	4.68	31.102	. .	30.667
	34	50 Virginis	6.0	3	III–VII.	68 30 5.3	5.8	8.8	14.1	4.8	8.8	7.93	28.008	. .	27.570
	35	Polaris, S. P . . .	. .	3	1, 3, 5.	327 30 1.8	0.4	7.0	7.3	1.1	1.9	3.25	25.985	. .	25.550
	36	Nadir	. .	.	. .	199 55 2.2	0.2	5.2	8.0	58.2	4.1	2.98	20.805	. .	. .
	37	Nadir	. .	.	. .	200 0 2.6	2.4	6.6	9.2	0.2	5.7	4.45	30.436	. .	. .
	38	Nadir	. .	.	. .	200 5 2.7	3.7	7.4	10.8	1.2	6.1	5.32	40.045	. .	. .
May 4	39	32 Ursæ Majoris . .	. .	3	IV–VI.	353 10 1.5	1.1	7.3	8.9	2.4	3.9	4.18	32.233	−0.417	31.809
	40	B. A. C. 7810, S. P. .	. .	3	IV–VI,	305 0 0.8	58.2	5.7	7.4	1.2	2.0	2.55	29.616	. .	29.206
	41	B. A. C. 3629 . . .	. .	3	1–5.	337 50 2.7	0.5	8.2	9.0	2.1	3.1	4.27	33.234	. .	32.816
	42	B. A. C. 7941, S. P. .	. .	3	IV½–V½.	319 40 4.4	1.3	9.2	9.2	3.4	5.0	5.42	33.683	. .	33.270
	43	ι Cephei, S. P. . . .	4.5	3	IV–VI.	304 29 1.7	58.8	7.3	8.3	1.7	3.1	3.48	33.066	. .	32.655
	44	α Ursæ Majoris . .	. .	2	V, VI.	356 25 0.8	0.4	7.9	10.0	0.5	3.0	3.77	26.061	. .	25.640
	45	Lacaille 4714. . .	8.3	3	III–VII.	87 45 1.4	0.2	4.0	9.4	0.0	2.4	2.90	30.393	. .	29.981
	46	O. Arg. S. 11610. .	8.5	3	III–VII.	87 50 2.9	1.7	6.4	11.4	1.6	3.3	4.55	31.400	. .	30.988
	47	B. A. C. 4050 . . .	. .	3	IV½–V½.	337 20 4.2	2.4	11.0	10.9	2.4	4.7	5.93	30.102	. .	29.680
	48	B. A. C. 105, S. P. .	. .	3	1–5.	315 15 3.1	0.4	8.2	9.1	2.8	4.1	4.62	32.009	. .	31.593
	49	6 Draconis	. .	3	IV–VI.	348 10 1.9	0.9	9.9	10.9	1.2	3.1	4.65	29.758	. .	29.333
	50	21 Cassiopeæ, S. P. .	. .	3	IV½–V½.	313 10 4.4	1.7	10.2	10.9	5.2	4.2	6.10	24.895	. .	24.480
	51	Anon. $12^h\ 44^m\ 47^s$.	9.3	3	III–VII.	84 0 1.1	0.8	6.9	10.4	1.4	2.2	3.80	30.692	. .	30.280
	52	O. Arg. S. 12564. .	7.8	3	III–VII.	80 20 0.3	2.2	6.2	10.6	2.1	2.7	4.02	33.992	. .	33.579
	53	θ Virginis	4.5	3	III–VII.	63 45 1.8	1.8	6.4	11.4	1.1	3.1	4.27	32.311	. .	31.895
	54	Anon. $13^h\ 21^m\ 24^s$.	8.0	3	III–VII.	91 40 1.2	1.6	5.7	10.1	1.3	1.9	3.63	30.789	. .	30.378
	55	85 Virginis	5.0	3	III–VII.	74 0 2.3	2.8	7.9	12.4	1.8	3.0	5.03	30.935	. .	30.521
	56	Anon. $13^h\ 47^m\ 49^s$.	7.5	3	III–VII.	96 50 4.4	8.3	12.4	16.0	6.4	6.9	9.07	27.455	. .	27.045
	57	Anon. $13^h\ 58^m\ 19^s$.	8.0	3	III–VII.	91 55 4.8	7.6	10.3	16.1	4.8	6.1	8.28	29.433	. .	29.022
	58	Nadir	. .	.	. .	199 59 59.5	61.2	65.1	10.3	58.7	62.9	62.95	30.366	. .	. .
7	59	38 Ursæ Majoris . .	. .	3	IV–VI.	352 30 3.7	58.4	5.7	3.9	4.2	6.6	3.75	29.254	−0.467	28.780
	60	α Ursæ Majoris . .	. .	3	IV–VI.	356 25 2.2	57.7	5.7	3.9	4.2	7.0	3.45	26.178	. .	25.705
	61	ο Cephei, S. P. . . .	. .	3	V–VII.	306 20 4.2	56.1	4.1	59.2	3.7	6.6	2.32	28.435	. .	27.975
	62	B. A. C. 8180, S. P. .	. .	3	IV–VI.	308 35 3.9	56.0	4.7	58.9	3.2	5.8	2.08	29.809	. .	29.350
	63	Nadir	. .	.	. .	199 59 61.7	52.3	60.1	58.6	58.9	66.1	59.62	30.310	. .	. .
	64	Anon. $12^h\ 8^m\ 46^s$.	7.0	3	IV–VI.	68 25 4.1	56.8	3.7	1.3	3.2	9.2	3.05	27.460	. .	26.993
	65	Anon. $12^h\ 9^m\ 6^s$ . .	. .	3	V–IX.	" " "	"	"	"	"	"	"	27.892	−0.467	27.427

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	′ ″		
1	30.030	62.6	60.5	+ 1 45.4	N. 39 33 9.2	47.1	+ 78 27 35.1	— 15.6	Y.	
2	. .	. .	. .	+ 1 42.3	S. 2 51 47.0	2.9	+ 36 1 48.9	— 4.8	Y.	
3	30.040	62.5	59.7	+ 0 42.3	N. 54 29 13.5	1 20.0	+ 86 35 47.7	+ 15.2	Y.	
4	. .	. .	. .	— 1 51.0	S. 37 13 18.4	43.5	+ 1 39 36.9	+ 5.3	Y.	Corr., — 1″.08, applied to mean of C, D, E, F.
5	30.036	62.3	59.3	+ 1 35.0	S. 41 56 39.2	51.4	— 3 3 51.8	+ 6.6	Y.	
6	30.042	62.2	59.1	+ 0 13.8	N. 42 39 44.0	52.8	+ 81 34 15.6	— 11.8	Y.	
7	30.040	62.2	58.8	— 0 15.1	64 50 12.1	2 1.4	+ 76 14 7.7	+ 13.0	Y.	
8	30.040	62.1	58.6	— 0 8.0	49 30 0.0	1 7.0	+ 88 24 45.8	— 11.0	Y.	
9	30.040	62.1	58.3	— 0 50.1	N. 64 45 47.6	2 1.1	+ 76 18 32.5	+ 11.8	Y.	
10	. .	. .	. .	— 2 48.3	S. 65 52 16.1	2 7.4	— 27 0 44.7	+ 10.0	Y.	
11	30.042	62.0	57.7	— 1 25.4	S. 70 28 39.0	2 40.5	— 31 37 40.7	+ 10.2	Y.	
12	30.040	61.8	57.5	+ 1 44.3	N. 28 23 12.8	31.1	+ 67 17 22.7	— 4.6	Y.	
13	30.044	61.6	56.7	+ 2 20.9	52 27 37.0	1 14.8	+ 88 37 29.4	+ 6.4	Y.	
14	. .	. .	. .	. .	. . . . .	. .	. . . . .	. .	Y.	
15	. .	. .	. .	. .	. . . . .	. .	. . . . .	. .	Y.	
16	. .	. .	. .	. .	. . . . .	. .	. . . . .	. .	Y.	
17	30.230	66.5	61.3	+ 0 57.0	61 24 1.5	1 44.8	+ 79 40 34.9	+ 21.3	Y.	
18	30.240	66.2	60.8	+ 0 16.8	45 59 41.7	59.4	+ 84 54 19.9	— 19.3	Y.	
19	30.242	66.2	60.4	+ 0 21.7	74 59 35.8	3 31.1	+ 66 3 14.3	+ 20.6	Y.	
20	. .	. .	59.7	+ 0 41.3	N. 27 29 16.6	30.0	+ 66 23 25.4	— 15.0	Y.	
21	30.244	66.0	59.2	+ 2 4.5	S. 42 37 5.2	53.0	— 3 44 19.4	+ 6.0	Y.	
22	30.254	65.7	58.6	— 1 24.1	N. 75 31 22.5	3 39.7	+ 65 31 19.0	+ 19.4	Y.	
23	30.250	65.2	58.0	— 2 46.8	N. 23 32 39.5	25.2	+ 62 26 43.5	— 13.1	Y.	
24	30.250	65.0	57.1	+ 0 1.5	S. 67 45 6.9	2 20.5	— 28 53 48.6	+ 12.0	Y.	
25	. .	. .	. .	+ 0 29.8	74 20 33.8	3 23.7	— 35 30 18.7	+ 13.0	Y.	
26	. .	. .	56.7	+ 0 12.8	74 20 16.8	3 23.6	— 35 30 1.6	+ 12.9	Y.	
27	. .	. .	. .	— 2 3.2	S. 3 58 0.6	4.0	+ 34 55 34.2	— 4.1	Y.	
28	30.244	64.2	55.8	+ 0 15.1	N. 42 39 43.0	53.4	+ 81 34 15.2	— 12.7	Y.	
29	. .	. .	. .	— 1 23.2	S. 5 23 42.6	5.5	+ 33 29 50.7	— 2.2	Y.	
30	. .	. .	. .	— 1 23.7	S. 5 23 42.1	5.5	+ 33 29 51.2	— 2.2	Y.	
31	30.244	63.5	55.0	— 0 49.7	N. 64 45 46.2	2 2.7	+ 76 18 32.3	+ 13.0	Y.	
32	30.242	63.5	54.9	— 0 40.3	N. 31 35 33.5	35.7	+ 70 29 48.0	— 8.8	Y.	
33	. .	. .	. .	— 0 20.9	S. 63 59 43.8	58.9	— 25 8 3.9	+ 10.0	Y.	Faint.
34	30.244	61.6	52.5	— 1 16.1	S. 48 31 24.0	1 6.0	— 9 38 51.2	+ 7.9	Y.	
35	30.245	61.2	52.5	+ 2 19.3	N. 52 27 37.4	1 15.9	+ 88 37 27.9	+ 7.9	Y.	
36	. .	. .	. .	. .	. . . . .	. .	. . . . .	. .	Y.	
37	. .	. .	. .	. .	. . . . .	. .	. . . . .	. .	Y.	
38	. .	. .	. .	. .	. . . . .	. .	. . . . .	. .	Y.	
39	30.200	58.5	52.0	— 0 56.7	26 50 52.5	29.6	+ 65 45 0.9	— 16.3	Y.	
40	30.206	58.3	51.8	+ 0 24.8	75 0 32.6	2 34.6	+ 66 3 14.0	+ 20.7	Y.	
41	30.206	58.2	51.4	— 1 28.2	42 11 23.9	53.0	+ 81 5 55.7	— 18.3	Y.	
42	30.206	58.1	51.3	— 1 42.4	60 21 37.0	1 42.5	+ 80 43 1.7	+ 19.8	Y.	
43	30.210	58.2	51.2	— 1 23.1	75 31 19.6	3 42.8	+ 65 31 18.8	+ 19.6	Y.	
44	30.208	58.0	51.0	+ 2 16.5	N. 23 32 39.7	25.5	+ 62 26 44.0	— 13.7	Y.	
45	. .	. .	. .	+ 0 0.6	S. 67 45 3.5	2 22.2	— 28 53 46.9	+ 12.5	Y.	
46	30.222	57.5	50.5	— 0 30.9	S. 67 49 33.6	2 22.9	— 28 58 17.7	+ 12.3	Y.	
47	30.228	57.2	50.1	+ 0 10.0	N. 42 39 44.0	54.0	+ 81 34 16.8	— 13.7	Y.	
48	30.222	57.0	49.4	— 0 49.9	64 45 45.3	2 4.0	+ 76 18 31.9	+ 13.9	Y.	
49	30.224	56.8	48.8	+ 0 20.9	31 49 34.5	36.5	+ 70 43 49.8	— 9.8	Y.	
50	30.220	56.5	48.0	+ 2 52.8	N. 66 47 1.0	2 16.5	+ 74 17 3.7	+ 12.9	Y.	
51	. .	. .	. .	— 0 8.8	S. 63 59 55.0	2 0.3	— 25 8 16.5	+ 10.5	Y.	
52	30.220	56.1	47.0	— 1 52.1	60 18 12.0	1 43.1	— 21 26 16.3	+ 9.8	Y.	
53	. .	. .	46.5	— 0 59.3	43 44 4.9	56.5	— 4 51 22.6	+ 7.2	Y.	
54	. .	. .	46.4	— 0 11.8	71 39 51.8	2 56.6	— 32 49 9.6	+ 10.4	Y.	
55	30.226	55.2	45.6	— 0 16.3	53 59 48.7	1 21.3	— 15 7 31.2	+ 8.5	Y.	
56	. .	. .	. .	+ 1 32.5	76 51 41.6	4 8.5	— 38 2 11.3	+ 9.8	Y.	
57	30.220	54.8	45.3	+ 0 30.6	S. 71 55 38.9	2 59.6	— 33 4 59.7	+ 9.2	Y.	
58	. .	. .	. .	. .	. . . . .	. .	. . . . .	. .	Y.	
59	30.056	70.0	76.2	+ 0 38.2	N. 27 29 18.1	28.8	+ 66 23 25.7	— 15.8	Y.	
60	30.086	70.3	79.0	+ 2 14.5	23 32 42.0	24.1	+ 62 26 44.9	— 14.1	Y.	
61	30.095	71.2	78.3	+ 1 3.4	73 38 54.3	3 5.8	+ 67 24 21.1	+ 18.6	Y.	
62	30.090	71.8	78.0	+ 0 20.3	N. 71 24 37.6	2 42.7	+ 69 39 0.9	+ 18.2	Y.	
63	. .	. .	. .	. .	. . . . .	. .	. . . . .	. .	Y.	
64	. .	. .	. .	+ 1 34.2	S. 48 26 37.2	1 2.5	— 9 34 0.9	+ 8.0	Y.	Preceding next 15^{s} or 20^{c}.
65	30.100	72.3	76.3	+ 1 20.6	S. 48 26 23.6	1 2.5	— 9 33 47.3	+ 8.0	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						° ′ ″	″	″	″	″	″	″	r.	r.	r.
1872.															
May 7	1	4 Draconis	. .	3	IV–VI.	349 0 6.3	58.2	8.6	3.9	6.2	9.7	5.48	31.854	−0.467	31.379
	2	21 Cassiopeæ, S. P. . .	. .	3	IV½–V½.	313 15 4.8	53.1	3.1	57.7	2.7	5.2	1.10	34.638	. .	34.173
10	3	Weisse (2) 15. . .	. .	3	III–VII.	22 50 3.2	54.2	1.8	58.2	1.5	7.9	1.13	27.112	−0.433	26.672
	4	λ Draconis	5.0	3	IV–VI.	348 50 2.9	52.8	3.9	56.3	0.3	5.7	0.32	27.201	. .	26.760
	5	2 Draconis	6.0	3	IV–VI.	" " "	"	"	"	"	"	"	26.928	. .	26.487
	6	Anon. 11h 33m 51s .	6.0	2	IV, VI.	57 15 oblit.	3.2	9.1	8.7	8.8	18.2	10.00	34.000	. .	33.567
	7	A1 Virginis	. .	3	IV–VI.	49 55 4.9	55.6	2.7	0.1	2.5	9.6	2.57	29.099	. .	28.666
	8	B. A. C. 8336, S. P. .	. .	3	I–5.	324 55 6.2	54.8	5.2	58.8	3.9	9.2	3.02	31.873	. .	31.442
	9	B. A. C. 4070. . . .	. .	3	I–5.	332 35 2.1	52.2	3.7	58.7	1.2	5.7	0.60	27.433	. .	26.998
	10	Weisse 107 . . .	7.0	3	IV–VI.	68 25 7.2	58.8	6.1	5.1	4.1	11.9	5.53	27.526	. .	27.093
	11	Weisse 114 . . .	8.5	2	VII, IX.	" " "	"	"	"	"	"	"	27.968	. .	27.539
	12	B. A. C. 105, S. P. .	. .	3	IV½–V½.	315 15 6.2	53.1	6.1	0.1	3.2	8.8	2.92	32.239	. .	31.809
	13	κ Draconis	. .	3	IV–VI.	348 25 8.2	0.2	11.3	6.2	7.7	12.3	7.65	31.882	. .	31.441
	14	35 Virginis	6.5	3	III–VII.	54 35 6.8	57.2	3.8	3.1	2.7	9.2	3.80	27.218	. .	26.784
	15	50 Virginis	. .	3	III–VII.	68 30 6.4	57.2	4.9	4.0	2.9	10.8	4.37	27.750	. .	27.319
	16	Polaris	. .	3	I–5.	327 30 7.2	56.1	7.6	2.9	4.9	9.2	4.65	26.210	. .	25.782
	17	85 Virginis	. .	3	III–VII.	74 0 2.3	53.3	2.4	1.9	58.6	5.2	0.62	30.619	. .	30.189
	18	Nadir	. .	.	. .	200 0 2.2	52.4	1.6	58.8	58.6	7.1	0.12	30.292	. .	. .
13	19	B. A. C. 3821 . . .	5.5	3	IV–VI.	349 55 6.2	59.6	9.0	9.3	3.1	7.6	5.80	28.763	−0.405	28.350
	20	Lacaille 4714. . .	8.5	3	V–IX.	87 45 4.8	58.4	5.2	8.0	59.7	6.0	3.68	30.200	. .	29.806
	21	B. A. C. 8213, S. P. .	. .	3	I–5.	325 30 4.2	57.5	6.7	5.9	2.1	6.0	3.73	29.100	. .	28.697
	22	O. Arg. S. 11614. .	7.0	3	III–VII.	87 55 6.4	59.8	6.4	8.8	1.2	7.0	4.93	32.795	. .	32.395
	23	B. A. C. 8314, S. P. .	. .	3	IV–VI.	312 40 4.2	55.8	8.7	4.7	0.8	4.2	3.07	35.313	. .	34.918
	24	B. A. C. 4070. . .	. .	3	I–5.	332 35 2.9	55.8	7.2	5.0	0.2	3.1	2.37	27.400	. .	26.993
	25	Anon. 12h 11m 57s .	9.3	2	V, IX.	84 45 5.3	0.4	8.9	9.9	2.2	7.8	5.75	34.240	. .	33.846
	26	4 Draconis	. .	3	IV–VI.	349 0 5.7	0.2	10.6	10.4	2.6	6.9	6.07	31.795	. .	31.382
	27	Anon. 12h 41m 6s .	8.3	3	III–VII.	85 45 8.2	2.8	10.8	13.8	3.9	9.8	8.22	33.531	. .	33.131
	28	2 Ursæ Minoris, S. P. .	. .	3	I–5.	324 30 3.8	57.4	7.1	6.7	1.0	4.8	3.47	32.515	. .	32.112
	29	Nadir	. .	.	. .	200 0 1.0	55.9	3.8	6.1	57.2	3.1	1.18	30.298	. .	. .
20	30	A1 Virginis	. .	2	IV, VI.	49 55 2.0	55.2	2.7	1.8	1.7	6.2	1.60	29.088	−0.416	28.672
	31	Nadir	. .	.	. .	200 0 1.6	53.8	1.2	0.8	59.1	5.1	0.27	30.280	. .	. .
21	32	B. A. C. 4193 . . .	. .	3	I–5.	334 45 5.7	59.0	7.8	3.1	5.2	8.2	4.83	28.574	−0.404	28.169
	33	B. A. C. 154, S. P. .	. .	2	V, 5.	320 40 4.6	57.5	7.6	2.9	3.4	7.0	3.83	26.396	. .	25.993
	34	O. Arg. N. 12996 .	10.0	1	V.	340 55 3.9	58.8	7.2	6.4	3.4	6.8	4.42	32.886	. .	32.482
	35	Anon. 12h 58m 41s .	8.0	2	IV, VI.	93 15 4.1	58.8	5.4	5.1	1.2	5.9	3.42	28.128	. .	27.726
	36	β Comæ	5.0	3	III–VII.	30 20 2.2	56.2	2.5	2.2	0.3	4.9	1.38	27.060	. .	26.651
	37	Lalande 25494 . .	7.5	2	III, VII.	37 0 7.0	1.8	8.3	8.1	6.8	8.9	6.82	30.898	. .	30.488
	38	Piazzi 220. . . .	7.5	2	V, IX.	" " "	"	"	"	"	"	"	33.324	. .	32.910
	39	Anon. 14h 4m 22s .	8.0	3	III–VII.	83 25 6.5	2.8	7.9	9.1	4.4	8.7	6.57	27.734	. .	27.334
	40	Lacaille 6038. . .	5.5	3	III–VII.	94 25 5.8	3.3	8.7	10.8	5.2	9.4	7.20	29.853	. .	29.456
	41	ν1 Libræ	5.0	3	III–VII.	74 40 4.5	2.2	7.7	9.7	3.7	7.4	5.87	34.519	−0.404	34.118
	42	Moon, N. . . .	. .	3	VII–IX.	75 30 7.8	4.1	11.7	12.2	6.7	10.4	8.82	32.385	−0.106	32.576
	43	χ Lupi	4.5	3	III–VII.	92 5 4.9	3.2	8.1	10.5	3.7	7.0	6.23	30.744	−0.404	30.346
	44	B. A. C. 5297 . . .	7.0	3	III–VII.	88 10 5.1	3.4	7.2	9.0	3.0	7.1	5.80	36.036	. .	35.637
	45	Nadir	. .	.	. .	200 0 2.8	58.9	4.7	7.2	59.4	6.2	3.20	30.357	. .	. .
23	46	Lacaille 5239. . .	. .	3	IV–VI.	85 55 4.5	58.2	5.3	5.1	1.3	5.3	3.28	35.568	−0.393	35.177
	47	Weisse (2) XII, 868 .	8.8	3	IV–VI.	32 0 6.8	1.3	6.6	6.2	4.2	8.6	5.62	34.196	. .	33.801
	48	β Comæ	5.0	3	III–VII.	30 20 5.7	59.8	6.2	6.2	4.5	8.9	5.22	27.158	. .	26.760
	49	Lacaille 5635. . .	6.7	3	III–VII.	85 45 4.4	58.3	6.1	6.9	1.9	6.1	3.95	25.991	. .	25.603
	50	O. Arg. S. 13177 . .	. .	2	I, IX.	86 30 4.4	59.4	6.2	7.5	1.4	7.2	4.35	26.721	. .	26.354
	51	O. Arg. S. 13182 . .	. .	3	IV–VI.	" " "	"	"	"	"	"	"	32.309	. .	31.918
	52	Weisse 893 . . .	9.2	3	V–IX.	71 0 6.7	1.2	7.9	9.3	4.2	9.8	6.52	34.994	. .	34.604
	53	Anon. 14h 12m 38s .	9.5	3	III–VII.	72 0 4.8	59.4	5.1	6.7	2.2	7.0	4.20	35.442	. .	35.051
	54	O. Arg. S. 13694. .	8.0	3	V–IX.	82 50 4.7	59.8	6.4	7.0	1.5	5.5	4.15	27.932	. .	27.547
	55	Lacaille 6038. . .	5.5	3	III–VII.	94 25 7.1	3.7	9.9	10.9	4.9	9.1	7.60	29.796	. .	29.410
	56	Weisse (2) 1130, (2d *)	8.9	3	IV–VI.	18 15 6.6	1.3	9.2	8.8	3.7	8.1	6.28	34.715	. .	34.319
	57	O. Arg. S. 14294. .	9.0	2	I, IX.	80 35 4.2	0.0	7.0	6.1	1.8	6.2	4.22	26.770	. .	26.397
	58	O. Arg. S. 14297. .	8.5	2	IV, VI.	" " "	"	"	"	"	"	"	29.482	. .	29.091
	59	Weisse 265 . . .	7.5	3	III–VII.	72 45 4.8	0.2	6.4	7.9	1.8	7.0	4.68	28.774	. .	28.383
	60	Lacaille 6410. . .	7.7	3	III–VII.	86 35 4.1	59.3	5.9	8.0	1.2	6.5	4.17	30.012	. .	29.624
	61	η Libræ	. .	3	IV–VI.	74 10 2.9	57.4	5.0	6.7	0.2	4.9	2.85	33.903	. .	33.511
	62	χ Lupi	. .	3	III–VII.	92 5 7.0	3.7	8.8	10.9	3.6	8.1	7.02	30.746	. .	30.359
	63	B. A. C. 5297 . . .	7.0	3	III–VII.	88 5 3.3	59.4	3.8	6.2	59.1	5.5	2.88	26.310	. .	25.922
	64	O. Arg. S. 15300 .	9.2	2	III, VII.	75 45 6.4	2.9	10.4	12.2	4.6	9.1	7.60	25.944	. .	25.555
	65	Nadir	. .	.	. .	200 0 4.1	0.7	6.8	9.9	1.6	8.4	5.25	30.413	−0.393	. .

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	30.100	72.2	75.3	− 0 43.2	N. 31 0 37.7	33.4	+ 69 54 49.9	− 10.6	Y.	
2	30.100	72.2	75.0	− 2 10.7	N. 66 47 9.6	2 8.9	+ 74 17 2.7	+ 13.4	Y.	
3	30.064	77.7	78.6	+ 1 44.2	S. 2 51 45.4	2.8	+ 36 1 50.6	− 7.0	Y.	
4	30.072	77.8	77.2	+ 1 41.5	N. 31 8 18.2	33.4	+ 70 2 30.4	− 14.9	Y.	
5	. .	. .	. .	+ 1 50.0	N. 31 8 9.7	33.4	+ 70 2 21.9	− 14.7	Y.	
6	. .	. .	. .	− 1 51.7	S. 37 13 18.3	42.1	+ 1 39 38.4	+ 4.6	Y.	Corr. of − 1ˢ.20 applied to mean of C, D, E, F.
7	. .	. .	. .	+ 0 41.8	S. 29 55 44.4	31.9	+ 9 57 22.5	+ 2.3	Y.	
8	30.078	77.5	76.0	− 0 45.2	N. 55 5 42.1	1 19.3	+ 85 59 19.8	+ 16.3	Y.	
9	30.080	77.4	76.0	+ 1 34.0	N. 47 23 25.4	1 0.3	+ 86 18 4.5	− 15.3	Y.	
10	. .	. .	. .	+ 1 31.0	S. 48 26 36.6	1 2.6	− 9 34 0.4	+ 7.9	Y.	
11	. .	. .	. .	+ 1 17.1	S. 48 26 22.6	1 2.6	− 9 33 46.4	+ 7.9	Y.	
12	30.078	77.1	74.6	− 0 56.7	N. 64 45 53.7	1 57.4	+ 76 14 30.1	+ 14.9	Y.	
13	30.080	77.0	74.2	− 0 45.1	N. 31 35 37.5	34.2	+ 70 29 50.5	− 11.2	Y.	
14	. .	. .	. .	+ 1 40.7	S. 34 36 44.5	38.4	+ 4 16 15.9	+ 4.8	Y.	
15	30.084	76.4	72.7	+ 1 23.9	S. 48 31 28.3	1 3.1	− 9 38 52.6	+ 8.0	Y.	
16	30.084	76.4	72.3	+ 2 12.1	N. 52 27 43.3	1 12.6	+ 88 37 25.3	+ 10.5	Y.	
17	. .	. .	. .	− 0 5.9	S. 53 59 54.7	1 16.8	− 15 7 32.7	+ 8.7	Y.	
18	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
19	29.996	72.0	65.2	+ 0 51.7	N. 30 4 2.5	32.7	+ 68 58 14.0	− 16.0	Y.	
20	. .	. .	. .	+ 0 6.1	S. 67 45 9.8	2 17.2	− 28 53 48.2	+ 12.9	Y.	
21	30.012	71.2	64.3	+ 0 40.8	N. 54 29 15.5	1 19.1	+ 86 35 46.6	+ 18.2	Y.	
22	. .	. .	. .	− 1 15.0	S. 67 53 49.9	2 18.5	− 29 2 29.6	+ 12.8	Y.	
23	30.016	70.8	63.2	− 2 34.0	N. 67 22 30.9	2 15.3	+ 73 41 35.0	+ 17.5	Y.	
24	30.028	70.3	62.5	+ 1 34.1	N. 47 23 23.5	1 1.7	+ 86 18 4.0	− 15.9	Y.	
25	. .	. .	. .	− 2 0.4	S. 64 43 5.3	1 59.8	− 25 51 26.3	+ 11.8	Y.	
26	30.020	69.8	62.0	− 0 43.3	N. 31 0 37.2	34.2	+ 69 54 50.2	− 12.0	Y.	
27	30.024	69.0	61.2	− 1 38.0	S. 65 43 30.2	2 5.6	− 26 51 57.0	+ 11.5	Y.	
28	30.034	68.5	61.2	− 1 6.1	N. 55 31 2.7	1 22.8	+ 85 33 55.7	+ 13.0	Y.	
29	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
30	29.702	71.0	69.6	+ 0 41.6	S. 29 55 43.2	31.9	+ 8 57 23.7	+ 1.8	Y.	
31	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
32	29.964	70.5	65.2	+ 0 59.3	N. 45 13 57.8	56.8	+ 84 8 33.4	− 15.4	Y.	
33	29.966	70.3	64.7	+ 2 5.5	59 17 50.7	1 34.8	+ 81 46 55.7	+ 15.7	Y.	
34	. .	. .	. .	− 1 17.7	N. 39 6 13.3	46.0	+ 78 0 38.1	− 13.5	Y.	
35	29.970	69.7	63.0	+ 1 11.2	S. 73 16 14.6	3 6.1	− 34 25 41.9	+ 13.3	Y.	
36	. .	. .	. .	+ 1 44.9	10 21 46.3	10.4	+ 28 31 42.1	− 1.9	Y.	
37	. .	. .	. .	− 0 15.3	16 59 51.5	17.4	+ 21 53 29.9	+ 1.0	Y.	Precedes next 3ˢ.
38	29.984	69.0	60.7	− 1 31.1	16 58 35.7	17.4	+ 21 54 45.7	+ 1.0	Y.	Follows last 3ˢ.
39	. .	. .	. .	+ 1 23.5	63 26 30.0	1 53.6	− 24 34 44.8	+ 10.1	Y.	
40	29.984	68.0	59.0	+ 0 17.0	74 25 24.2	3 22.0	− 35 35 7.4	+ 10.4	Y.	
41	. .	. .	. .	− 2 8.9	54 37 56.9	+ 1 20.4	− 15 45 38.5	+ 7.9	Y.	
42	29.976	67.0	58.4	− 1 20.7	55 28 48.2	−31 17.2	− 16 3 52.1	. .	Y.	
43	29.980	66.3	57.9	− 0 10.8	72 4 55.4	+ 2 55.2	− 33 14 11.8	+ 6.9	Y.	
44	. .	. .	. .	− 2 56.5	68 7 9.3	2 21.6	− 29 15 52.1	+ 6.8	Y.	
45	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
46	29.918	68.7	64.3	− 2 42.1	65 52 21.2	2 5.3	− 27 0 47.7	+ 12.3	Y.	
47	. .	. .	. .	− 1 59.0	11 58 6.6	12.0	+ 26 55 20.2	− 2.3	Y.	
48	. .	. .	. .	+ 1 41.5	10 21 46.7	10.3	+ 28 31 41.8	− 2.3	Y.	
49	29.910	68.0	63.2	+ 2 17.7	65 47 21.6	2 5.0	− 26 55 47.8	+ 11.3	Y.	
50	. .	. .	. .	+ 1 54.2	66 31 58.5	2 9.5	− 27 40 29.2	+ 11.1	Y.	
51	. .	. .	. .	− 1 0.1	66 29 4.3	2 9.2	− 27 37 34.7	+ 11.1	Y.	
52	. .	. .	. .	− 2 24.2	50 57 42.4	1 9.8	− 12 5 13.4	+ 8.2	Y.	
53	29.926	67.5	62.5	− 2 38.2	51 57 26.0	1 12.3	− 13 4 59.5	+ 8.2	Y.	Faint.
54	. .	. .	. .	+ 1 16.8	62 51 21.0	1 50.1	− 23 59 32.3	+ 9.6	Y.	
55	. .	. .	. .	+ 0 18.5	S. 74 25 26.1	3 20.5	− 35 35 7.8	+ 10.6	Y.	
56	. .	. .	. .	− 2 15.3	N. 1 47 9.0	1.8	+ 40 40 49.6	+ 0.3	X.	
57	29.910	67.3	61.2	+ 1 52.8	S. 60 36 57.0	1 40.5	− 21 44 58.7	+ 8.4	Y.	
58	. .	. .	. .	+ 0 28.5	60 35 32.7	1 40.4	− 21 43 34.3	+ 8.4	Y.	
59	. .	. .	. .	+ 0 50.6	52 45 55.3	1 14.6	− 13 53 31.1	+ 7.5	Y.	
60	29.908	66.7	60.7	+ 0 11.8	66 35 16.0	2 10.4	− 27 43 47.6	+ 8.1	Y.	
61	. .	. .	. .	− 1 49.9	54 8 12.9	1 18.5	− 15 15 52.6	+ 7.2	Y.	
62	29.900	66.0	60.0	− 0 11.3	72 4 55.8	2 54.0	− 33 14 11.0	+ 7.6	Y.	
63	. .	. .	. .	+ 2 7.7	68 7 10.6	2 20.6	− 29 15 52.4	+ 7.1	Y.	
64	. .	. .	. .	+ 2 19.2	S. 55 47 26.8	1 23.6	− 16 55 11.6	+ 6.7	Y.	
65	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						°	′	″	″	″	″	″	″	″	r.	r.	r.
1872.																	
May 28	1	B. A. C. 4165. . .	. .	3	1–5.	330	30	5.3	57.1	8.9	4.9	4.8	7.9	4.82	30.752	−0.382	30.365
	2	B. A. C. 154, S. P. .	. .	3	1–5.	320	40	6.7	56.8	8.8	4.4	4.0	7.9	4.77	26.430	. .	26.049
	3	21 Cassiopeæ, S. P. .	. .	3	IV½–V½.	313	15	3.7	55.2	5.7	1.0	2.3	3.9	1.97	34.595	. .	34.215
	4	Weisse (2) XII, 868.	8.8	2	VII, IX.	32	0	4.7	59.1	5.0	4.4	1.8	6.1	3.52	34.114	. .	33.714
	5	Lacaille 5347. . .	8.5	3	III–VII.	101	50	5.2	59.3	5.6	6.0	2.2	5.9	4.03	33.448	. .	33.075
	6	Anon. $12^h\ 58^m\ 45^s$.	8.0	3	IV–VI.	93	15	3.1	57.7	4.0	4.7	59.8	4.0	2.22	27.948	. .	27.568
	7	β Comæ.	4.5	3	III–VII.	30	20	5.0	58.1	4.7	5.2	3.1	7.3	3.90	27.151	. .	26.764
	8	B. A. C. 4506. . .	. .	2	V, VII.	345	50	3.9	55.8	5.8	2.4	1.2	4.8	2.32	29.138	. .	28.733
	9	Nadir	. .	.	. .	200	5	4.7	59.3	6.0	6.3	2.2	7.6	4.35	39.953	. .	. .
	10	Nadir	. .	.	. .	200	0	1.1	55.8	2.9	3.7	59.7	5.4	1.43	30.288	. .	. .
	11	Nadir	. .	.	. .	199	55	3.5	57.0	4.8	5.9	1.2	7.2	3.27	20.769	. .	. .
	12	O. Arg. S. 13747. .	9.0	3	III–VII.	86	35	3.7	57.1	5.4	6.4	1.5	5.9	3.33	33.607	. .	33.230
	13	Anon. $14^h\ 29^m\ 35^s$.	9.5	1	IX.	"	"	"	"	"	"	"	"	"	35.333	. .	34.974
	14	58 Hydræ	5.0	3	III–VII.	86	20	3.5	56.7	4.7	5.0	0.2	4.7	2.47	35.865	. .	35.488
	15	Lacaille 6218. . .	7.5	2	III, IX.	88	20	5.1	0.5	5.9	6.0	1.8	6.9	4.37	29.096	. .	28.732
	16	δ Bootis.	4.5	3	V–IX.	25	5	7.8	2.1	9.6	8.8	4.0	8.2	6.75	28.768	. .	28.371
	17	B. A. C. 5140. . .	. .	3	1–5.	331	10	3.7	56.2	7.1	4.0	0.8	4.5	2.72	27.780	. .	27.395
	18	γ Camelopardi, S. P. .	. .	3	IV–VI.	309	50	7.9	1.7	11.1	7.0	5.2	9.1	7.00	26.292	. .	25.918
	19	49 Libræ.	. .	3	III–VII.	75	0	8.7	4.8	12.4	13.6	7.8	10.7	9.67	27.543	. .	27.164
June 4	20	Polaris, S. P. . .	. .	3	1–5.	327	30	4.1	58.5	7.9	5.1	2.7	4.2	3.75	26.225	−0.383	25.847
	21	Anon. $13^h\ 41^m\ 7^s$.	8.2	3	III–VII.	89	0	6.1	2.3	7.8	7.8	3.3	7.8	5.85	34.395	. .	34.018
	22	Anon. $13^h\ 48^m\ 38^s$.	9.8	3	III–VII.	96	50	4.8	2.2	9.1	9.3	3.9	7.2	6.08	26.789	. .	26.413
	23	Anon. $13^h\ 58^m\ 18^s$.	8.5	3	V–IX.	91	55	2.2	58.0	4.8	5.1	59.5	2.9	2.08	28.708	. .	28.338
	24	Weisse 199 . . .	7.2	3	III–VII.	72	0	1.8	55.2	1.8	2.4	57.2	2.0	0.07	30.981	. .	30.600
	25	Schwerd 835 . . .	8.0	3	IV½–V½.	339	0	3.8	57.9	9.5	6.9	1.8	3.9	3.97	32.884	. .	32.497
	26	O. Arg. S. 13747. .	7.5	3	III–VII.	86	35	5.1	0.2	8.1	10.1	1.8	7.9	5.53	33.548	. .	33.170
	27	Anon. $14^h\ 29^m\ 54^s$.	9.0	2	VII, IX.	"	"	"	"	"	"	"	"	"	28.214	. .	27.845
	28	58 Hydræ	5.0	3	III–VII.	86	20	6.8	3.2	10.0	12.2	4.6	8.3	7.52	35.974	. .	35.596
	29	ε Bootis.	. .	3	III–VII.	33	30	6.5	3.9	9.9	11.3	4.4	9.5	7.58	28.198	. .	27.810
	30	δ Bootis.	. .	3	V–IX.	25	5	9.2	5.4	11.8	12.4	5.2	10.1	9.02	28.901	. .	28.503
	31	ε Libræ	5.5	3	III–VII.	68	45	5.4	2.8	9.7	10.8	2.9	8.0	6.60	31.929	. .	31.548
	32	37 Libræ	. .	3	III–VII.	68	30	4.9	2.9	9.0	10.2	2.9	8.1	6.33	30.350	. .	29.969
	33	η Libræ	. .	3	III–VII.	74	10	7.0	3.5	10.2	12.2	4.8	8.0	7.62	34.031	. .	33.651
	34	b Scorpii	4.5	3	III–VII.	84	15	1.2	58.3	6.1	5.2	59.5	2.9	2.20	33.469	. .	33.091
	35	49 Libræ.	5.5	3	III–VII.	75	0	0.7	57.3	5.2	5.7	58.2	2.3	1.57	27.241	. .	26.861
	36	O. Arg. S. 15300. .	9.2	2	VI, IX.	75	45	5.7	2.5	11.2	10.8	3.9	5.9	6.67	25.614	. .	25.238
	37	γ Herculis	5.0	3	III–VII.	39	25	3.9	0.7	7.8	9.0	3.3	7.1	5.30	28.562	. .	28.176
	38	O. Arg. S. 15713. .	8.3	3	III–VII.	79	20	3.7	1.4	8.7	8.7	1.5	5.2	4.87	29.248	. .	28.869
	39	O. Arg. S. 15782. .	8.5	2	VII, IX.	88	30	6.7	3.8	9.9	11.0	4.3	8.5	7.37	32.182	. .	31.815
	40	Nadir	. .	.	. .	200	0	2.1	58.8	5.7	7.7	59.8	5.5	3.27	30.340	. .	. .
6	41	i Draconis	. .	3	IV–VI.	353	30	2.9	57.2	4.8	1.2	2.9	6.1	2.52	25.571	−0.375	25.190
	42	a Draconis	. .	2	V, VI.	353	55	7.8	0.2	8.1	5.0	7.1	9.9	6.35	31.278	. .	30.898
	43	ι Cassiopeæ, S. P . .	. .	3	IV–VI.	305	45	3.1	53.4	2.5	58.9	59.8	4.1	0.30	28.065	. .	27.697
	44	Nadir	. .	.	. .	200	0	3.4	55.9	2.9	2.3	0.5	7.9	2.15	30.296	. .	. .
10	45	Anon. $13^h\ 43^m\ 49^s$.	8.3	3	III–VII.	96	20	5.2	59.7	6.9	6.1	1.3	7.1	4.38	30.285	−0.369	29.923
	46	Anon. $13^h\ 52^m\ 45^s$.	9.5	2	V, IX.	35	25	3.3	56.8	3.4	3.4	59.6	6.1	2.10	33.686	. .	33.306
	47	Anon. $14^h\ 4^m\ 27^s$.	8.0	3	III–VII.	83	25	3.6	57.3	4.6	4.9	58.4	4.8	2.27	27.474	. .	27.109
	48	Weisse XIV, 257 .	9.5	3	IV, VII, IX.	63	35	4.3	56.3	2.9	3.9	58.1	5.0	1.78	27.932	. .	27.564
	49	Anon. $14^h\ 24^m\ 32^s$.	7.8	2	VII, IX.	82	55	4.4	56.8	4.1	4.9	58.8	4.2	2.20	37.438	. .	37.081
	50	Anon. $14^h\ 34^m\ 17^s$.	8.5	3	III–VII.	91	5	4.3	58.8	4.1	5.9	0.0	5.5	3.10	26.675	. .	26.312
	51	58 Hydræ	5.5	3	III–VII.	86	15	8.3	3.7	9.7	10.8	4.9	10.2	7.93	26.344	. .	25.980
	52	Weisse (2) 1130, (2d *)	8.8	3	V–IX.	18	15	6.3	0.2	8.3	8.2	2.7	8.0	5.62	34.713	. .	34.324
	53	O. Arg. S. 14297. .	9.0	2	I, IX.	80	35	8.8	5.3	11.0	11.8	5.8	10.5	8.87	29.541	. .	29.191
	54	O. Arg. N. 15259 .	8.0	2	V, VI.	351	35	7.0	4.0	12.1	10.9	6.7	10.3	8.50	32.576	. .	32.202
	55	B. A. C. 5140. . .	7.0	3	1–5.	331	10	2.9	57.1	7.1	5.0	59.7	4.3	2.68	27.894	. .	27.522
	56	37 Libræ	5.5	3	III–VII.	68	30	3.0	58.9	4.8	6.4	58.9	7.1	3.18	30.196	. .	29.829
	57	b Scorpii	. .	3	III–VII.	84	15	7.1	1.4	8.7	8.2	2.1	7.9	5.90	33.508	. .	33.144
	58	49 Libræ	. .	3	III–VII.	75	0	8.0	4.4	11.8	12.4	4.9	10.9	8.73	27.440	. .	27.074
	59	O. Arg. S. 15300. .	9.0	3	III–VII.	75	50	5.2	0.4	8.1	7.9	1.4	7.1	5.02	35.056	. .	34.690
	60	γ Herculis	5.0	3	III–VII.	39	25	4.3	58.8	6.7	7.2	2.2	8.1	4.55	28.539	. .	28.167
	61	O. Arg. S. 15713. .	8.5	3	III–VII.	79	20	7.8	4.4	10.6	10.0	3.5	10.0	7.72	29.236	. .	28.871
	62	O. Arg. S. 15782. .	8.3	3	III–VII.	88	30	6.3	2.5	8.6	9.1	3.6	9.1	6.53	32.127	. .	31.763
	63	Lacaille 7011. . .	7.0	2	I, IX.	96	15	5.4	3.8	10.1	9.9	3.3	8.2	6.78	34.858	. .	34.526
	64	Anon. $16^h\ 43^m\ 29^s$.	9.5	2	IV, VI.	"	"	"	"	"	"	"	"	"	33.010	. .	32.643
	65	Nadir	. .	.	. .	200	0	1.9	55.9	3.5	4.8	58.1	5.6	1.63	30.276	−0.369	. .

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	29.915	70.5	65.6	− 0 11.4	N. 49 30 6.6	1 5.8	+ 88 24 51.2	− 17.0	Y.	
2	29.913	70.2	65.0	+ 2 3.7	59 17 51.5	1 34.6	+ 81 46 55.1	+ 16.5	Y.	
3	29.920	70.0	64.5	− 2 12.0	N. 66 47 10.0	2 10.6	+ 74 17 0.6	+ 16.1	Y.	
4	. .	. .	. .	− 1 56.3	S. 11 58 7.2	12.0	+ 26 55 19.6	− 3.4	Y.	
5	. .	. .	. .	− 1 36.3	81 48 27.8	6 12.1	− 43 1 1.1	+ 15.7	Y.	
6	29.920	69.4	64.1	+ 1 16.2	73 16 18.4	3 5.4	− 34 25 45.0	+ 13.7	Y.	
7	. .	. .	. .	+ 1 41.3	S. 10 21 45.2	10.3	+ 28 31 43.3	− 3.2	Y.	
8	29.940	69.0	63.3	+ 0 39.7	N. 34 9 18.0	38.4	+ 73 3 35.2	− 11.6	Y.	
9	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
10	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
11	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
12	. .	. .	. .	− 1 41.2	S. 66 33 22.2	2 10.0	− 27 41 53.4	+ 10.2	Y.	
13	29.964	66.8	61.6	− 2 35.8	66 32 27.6	2 10.1	− 27 40 58.9	+ 10.2	Y.	
14	. .	. .	. .	− 2 51.8	66 17 10.6	2 8.7	− 27 25 40.5	+ 9.7	Y.	
15	. .	. .	. .	+ 0 39.7	68 20 44.1	2 22.3	− 29 29 27.6	+ 9.5	Y.	
16	. .	. .	. .	+ 0 51.0	S. 5 5 57.8	5.1	+ 33 47 35.9	+ 0.9	Y.	
17	29.980	68.0	60.1	+ 1 21.6	N. 48 48 35.7	1 5.1	+ 87 43 19.6	− 4.1	Y.	
18	29.984	67.5	59.8	+ 2 7.8	N. 70 7 45.2	2 36.5	+ 70 55 59.5	+ 3.4	Y.	
19	29.990	67.2	58.8	+ 1 28.8	S. 55 1 38.5	1 21.6	− 16 9 21.3	+ 6.8	Y.	
20	29.710	68.3	62.2	+ 2 10.1	N. 52 27 46.2	1 13.1	+ 88 37 21.9	+ 14.7	Y.	
21	29.712	67.8	61.7	− 2 5.8	S. 68 58 0.0	2 25.4	− 30 6 46.6	+ 12.5	Y.	
22	. .	. .	. .	+ 1 52.3	76 51 58.4	3 56.5	− 38 2 16.1	+ 14.0	Y.	
23	29.718	67.3	61.2	+ 0 52.0	71 55 54.1	2 51.0	− 33 5 6.3	+ 12.7	Y.	
24	. .	. .	. .	− 0 18.8	S. 51 59 41.3	1 12.1	− 13 7 14.6	+ 8.1	Y.	
25	29.708	67.0	61.2	− 1 18.2	N. 41 1 14.2	49.1	+ 79 55 42.1	− 9.9	Y.	
26	. .	. .	. .	− 1 39.3	S. 66 33 26.3	2 9.3	− 27 41 56.8	+ 10.8	Y.	
27	. .	. .	. .	+ 1 7.5	66 36 13.0	2 9.6	− 27 44 43.8	+ 10.8	Y.	
28	29.714	66.2	60.7	− 2 55.3	66 17 12.3	2 7.7	− 27 25 41.2	+ 10.3	Y.	
29	. .	. .	. .	+ 1 8.6	13 31 16.1	13.6	+ 25 22 9.1	+ 0.6	Y.	
30	. .	. .	. .	+ 0 46.9	5 5 55.9	5.0	+ 33 47 37.9	− 0.5	Y.	
31	29.710	65.8	60.3	− 0 48.5	48 44 18.1	1 4.3	− 9 51 43.6	+ 6.8	Y.	
32	. .	. .	. .	+ 0 1.0	48 30 7.3	1 3.8	− 9 37 32.3	+ 6.6	Y.	Clouds.
33	. .	. .	. .	− 1 54.3	54 8 13.3	1 18.1	− 15 15 52.6	+ 7.1	Y.	
34	. .	. .	. .	− 1 36.8	64 13 25.4	1 56.6	− 25 21 43.2	+ 8.0	Y.	
35	29.716	65.3	59.4	+ 1 38.3	55 1 39.8	1 20.7	− 16 9 21.7	+ 6.9	Y.	
36	. .	. .	. .	+ 2 29.1	55 47 35.8	1 23.1	− 16 55 20.1	+ 6.7	Y.	
37	. .	. .	. .	+ 0 57.1	19 26 2.4	20.0	+ 19 27 16.4	+ 3.6	Y.	
38	. .	. .	. .	+ 0 35.4	59 20 40.3	1 35.3	− 20 28 36.8	+ 6.2	Y.	
39	29.708	65.0	58.8	− 0 56.8	S. 68 29 10.5	2 22.7	− 29 37 54.4	+ 6.3	Y.	
40	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
41	29.904	72.0	69.3	+ 2 30.6	N. 26 27 26.9	27.8	+ 65 21 33.5	− 10.6	Y.	
42	29.902	72.0	69.2	− 0 28.1	26 5 21.8	27.4	+ 64 59 28.0	− 9.8	Y.	
43	29.905	71.8	68.8	+ 1 12.1	N. 74 13 47.6	3 15.0	+ 66 49 18.6	+ 10.4	Y.	
44	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
45	29.872	73.0	66.5	+ 0 2.4	S. 76 20 6.8	3 46.2	− 37 20 14.2	+ 14.3	Y.	
46	. .	. .	. .	− 1 43.5	15 23 18.6	15.4	+ 23 30 4.8	− 2.2	Y.	
47	. .	. .	. .	+ 1 30.5	63 26 32.8	1 51.8	− 24 34 45.8	+ 10.8	Y.	
48	. .	. .	. .	+ 1 16.3	43 36 18.1	53.4	− 4 43 32.7	+ 5.7	Y.	Faint.
49	29.880	72.2	65.7	− 3 41.8	62 51 20.4	1 49.1	− 23 59 30.7	+ 10.3	Y.	
50	. .	. .	. .	+ 1 55.5	71 6 58.6	2 42.6	− 32 16 2.4	+ 11.7	Y.	
51	. .	. .	. .	+ 2 5.9	S. 66 17 13.8	2 7.2	− 27 25 42.2	+ 10.5	Y.	
52	. .	. .	. .	− 2 15.4	N. 1 47 9.8	1.8	+ 40 40 50.4	− 3.9	Y.	
53	29.880	71.5	65.2	+ 0 25.3	S. 60 35 34.2	1 39.4	− 21 43 34.8	+ 8.9	Y.	
54	. .	. .	. .	− 1 8.9	N. 28 26 0.4	30.5	+ 67 20 9.7	− 6.5	Y.	
55	29.882	71.2	65.2	+ 1 17.6	N. 48 48 39.7	1 4.2	+ 87 43 22.7	− 7.4	Y.	
56	. .	. .	. .	+ 0 5.3	S. 48 30 8.5	1 3.4	− 9 37 33.1	+ 6.2	Y.	
57	29.886	71.2	66.2	− 1 38.4	64 13 27.5	1 55.7	− 25 21 44.4	+ 8.2	Y.	
58	. .	. .	. .	+ 1 31.6	55 1 40.4	1 20.1	− 16 9 21.7	+ 6.7	Y.	
59	. .	. .	66.4	− 2 26.9	55 47 38.1	1 22.5	− 16 55 21.8	+ 6.6	Y.	
60	. .	. .	. .	+ 0 57.4	19 26 2.0	20.5	+ 19 27 16.3	+ 2.4	Y.	
61	. .	. .	. .	+ 0 35.3	59 20 43.1	1 34.6	− 20 28 38.9	+ 6.2	Y.	
62	29.894	71.5	65.4	− 0 55.2	68 29 11.3	2 21.7	− 29 37 54.2	+ 6.6	Y.	
63	. .	. .	. .	− 2 21.7	76 12 45.1	3 44.8	− 37 22 51.1	+ 6.2	Y.	
64	. .	. .	. .	− 1 22.7	S. 76 13 44.0	3 45.2	− 37 23 50.4	+ 6.3	Y.	Very faint.
65	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						° ′ ″	″	″	″	″	″	″	r.	r.	r.
1872.															
June 12	1	Polaris, S. P. . . .	. .	3	1–5.	327 29 60.3	49.2	60.2	54.4	57.9	61.7	57.28	26.118	−0.363	25.760
	2	B. A. C. 4498. . .	. .	2	V, 5.	333 30 4.7	54.2	4.8	57.9	2.7	6.8	1.85	32.498	. .	32.134
	3	Lacaille 5649, (1st *)	7.0	3	V–IX.	92 10 7.9	57.5	4.8	2.9	2.3	9.2	4.10	28.492	. .	28.142
	4	Anon. $13^h\ 55^m\ 32^s$.	8.2	3	IV½–V½.	341 50 7.5	53.7	6.6	1.3	3.7	8.8	3.60	37.076	. .	36.710
	5	Anon. $14^h\ 4^m\ 20^s$.	7.7	3	III–VII.	83 25 7.2	57.6	5.7	3.1	3.2	9.9	4.45	27.459	. .	27.100
	6	Weisse XIV, 257 .	9.2	3	III–VII.	63 35 5.0	54.0	1.6	0.0	0.5	7.1	1.37	27.938	. .	27.576
	7	O. Arg. S. 13747. .	8.0	3	III–VII.	86 35 5.0	55.2	3.7	3.0	1.1	8.3	2.72	33.328	. .	32.970
	8	Anon. $14^h\ 34^m\ 16^s$.	8.5	3	III–VII.	91 5 4.9	53.4	1.1	59.2	58.8	5.2	0.43	26.401	. .	26.044
	9	Anon. $14^h\ 57^m\ 40^s$.	9.5	2	IV, IX.	48 30 8.2	58.1	5.2	3.2	5.8	11.0	5.25	34.207	. .	33.839
	10	Weisse XV, 265 .	7.7	3	III–VII.	72 45 5.7	55.8	3.0	0.0	2.8	7.1	2.40	28.571	. .	28.210
	11	Lacaille 6410. . .	7.5	3	III–VII.	86 35 6.9	58.2	5.8	5.9	4.2	10.7	5.28	29.842	. .	29.484
	12	Anon. $15^h\ 33^m\ 36^s$.	9.2	3	III–VII.	74 25 5.9	56.8	4.6	3.1	2.8	8.3	3.58	26.344	. .	25.984
	13	ζ Ursæ Minoris . .	4.5	3	IV½–V½.	340 45 3.3	53.0	3.9	59.9	0.6	5.2	0.98	34.062	. .	33.696
	14	O. Arg. S. 15359. .	8.5	3	III–VII.	88 40 4.7	56.8	3.1	1.2	0.6	7.9	2.38	29.405	. .	29.048
	15	γ Herculis	. .	3	III–VII.	39 25 5.1	55.4	3.8	1.2	3.1	8.9	2.92	28.484	. .	28.118
	16	B. A. C. 1399, S. P. .	. .	3	IV½–V½.	319 20 4.7	52.7	5.1	57.1	0.1	6.1	0.97	31.558	. .	31.199
	17	Anon. $16^h\ 33^m\ 33^s$.	9.0	3	III–VII.	91 25 4.9	57.1	3.8	1.1	0.6	6.1	2.27	31.248	. .	30.891
	18	Lacaille 7011. . .	7.0	3	III–VII.	96 15 5.3	57.8	5.1	2.4	0.8	6.8	3.03	34.701	. .	34.345
	19	ε Herculis	. .	3	III–VII.	27 45 7.0	58.9	6.0	3.1	4.7	10.2	4.98	27.540	. .	27.171
	20	Nadir	. .	.	. .	200 0 4.8	55.9	3.9	3.1	1.2	9.8	3.12	30.316	. .	. .
18	21	κ Centauri, (1st *) .	6.5	3	I–IX.	91 15 6.7	57.8	4.9	4.1	1.7	8.2	3.90	34.955	−0.347	34.638
	22	κ Centauri, (2d *) .	8.0	3	III–VII.	" " "	"	"	"	"	"	"	34.873	. .	34.532
	23	Weisse 236 . . .	7.7	3	III–VII.	63 29 64.5	52.4	60.7	59.0	57.8	64.9	59.88	29.452	. .	29.106
	24	Lacaille 5932. . .	7.5	3	III–VII.	91 15 5.7	57.8	4.1	2.9	0.4	7.1	3.00	31.171	. .	30.830
	25	B. A. C. 4816. . .	6.0	3	V–IX.	21 25 4.0	54.8	2.4	0.3	0.7	6.3	1.42	36.221	. .	35.858
	26	B. A. C. 814, S. P. .	. .	3	IV–VI.	306 15 6.7	55.2	4.8	1.0	0.8	6.7	2.53	33.643	. .	33.303
	27	β Ursæ Minoris . .	. .	3	IV–VI.	344 15 6.1	55.1	7.2	2.2	2.7	7.9	3.53	33.487	. .	33.129
	28	Anon. $14^h\ 57^m\ 45^s$.	9.5	2	V, VII.	48 30 6.4	56.4	3.8	3.8	2.2	8.5	3.52	34.046	. .	33.697
	29	O. Arg. S. 14421. .	9.0	3	III–VII.	88 50 7.4	56.8	4.1	4.2	2.2	9.0	3.95	27.222	. .	26.881
	30	B. A. C. 5140. . .	7.0	3	1–5.	331 10 7.3	56.2	7.8	3.8	1.8	8.0	4.15	27.993	. .	27.643
	31	Lacaille 6421. . .	7.0	3	III–VII.	91 35 9 3	2.3	8.2	7.0	4.6	9.9	6.88	30.101	. .	29.760
	32	η Libræ	. .	3	III–VII.	74 10 5.6	57.2	5.2	4.8	2.1	6.9	3.63	33.808	−0.347	33.464
	33	Moon, N.	. .	3	III–VII.	77 55 5.0	56.7	5.2	3.5	1.2	6.9	3.08	30.705	−0.059	30.649
	34	Nadir	. .	.	. .	200 5 7.5	58.4	7.1	6.9	2.5	11.1	5.58	39.961	−0.347	. .
	35	Nadir	. .	.	. .	200 0 5.6	56.3	4.7	5.1	1.5	9.8	3.83	30.325	. .	. .
	36	Nadir	. .	.	. .	199 55 5.8	57.3	5.2	5.7	1.6	9.6	4.20	20.751	. .	. .
	37	Lacaille 7011. . .	7.0	3	V–IX.	96 15 6 9	59.7	8.4	6.4	4.0	8.9	5.72	34.921	. .	34.586
	38	Anon. $16^h\ 53^m\ 16^s$.	8.3	3	IV–VI.	95 55 10.2	3.0	11.8	9.1	6.5	12.4	8.83	27.459	. .	27.114
	39	w Herculis	5.5	3	III–VII.	26 15 5.7	55.8	5.2	1.9	0.7	6.0	2.55	29.434	. .	29.081
	40	B. A. C. 5919. . .	5.5	3	III–VII.	56 5 5.9	55.9	4.8	4.8	1.5	7.3	3.37	33.067	. .	32.720
22	41	O. Arg. S. 14421. .	9.0	3	III–VII.	88 50 4.9	55.2	2.2	0.6	59.6	8.1	1.77	27.026	−0.338	26.694
	42	ζ^1 Libræ	6.0	3	III–VII.	75 10 6.7	56.3	4.9	3.2	1.1	8.5	3.45	33.264	. .	32.929
	43	η Libræ	4.5	3	III–VII.	74 10 6.2	55.0	4.7	3.0	1.4	8.2	3.08	33.788	. .	33.453
	44	χ Lupi	5.0	3	V–IX.	92 5 8.8	0.8	6.5	6.1	3.7	10.2	6.02	30.362	. .	30.037
	45	B. A. C. 1247, S. P. .	. .	3	IV½–V½.	322 25 8.2	58.0	9.9	4.4	4.3	10.6	5.90	32.020	. .	31.688
	46	Groombridge 2320 .	. .	2	V, VI.	350 45 7.1	56.7	8.1	5.7	4.9	9.4	5.32	30.133	. .	29.790
	47	η Ursæ Minoris . .	. .	3	IV½–V½.	342 50 8.2	58.4	10.2	5.3	5.8	10.9	6.47	28.099	. .	27.758
	48	β Herculis	4.5	3	IV–VI.	37 10 6.1	56.9	4.3	3.0	2.2	9.1	3.60	35.943	. .	35.604
	49	B. A. C. 1448, S. P. .	. .	3	1–5.	319 55 6.5	55.8	8.1	1.6	2.3	8.2	3.75	33.173	. .	32.836
	50	50 Herculis	5.0	3	III–VII.	28 50 6.3	58.9	6.8	5.4	2.9	9.3	4.93	26.919	. .	26.575
	51	Nadir	. .	.	. .	200 0 5.2	55.2	3.9	2.2	59.8	9.1	2.57	30.275	−0.338	. .
28	52	δ Bootis.	4.5	3	IV–VI.	25 4 62.9	50.4	58.8	55.9	56.1	62.0	57.68	28.636	−0.332	28.302
	53	ε Libræ	5.0	3	III–VII.	68 45 7.8	59.1	6.1	4.9	2.8	11.2	5.32	31.861	. .	31.531
	54	Lacaille 6410. . .	7.5	3	V–IX.	86 34 62.7	51.3	60.5	58.7	56.5	65.2	57.48	29.598	. .	29.276
	55	B. A. C. 1211, S. P. .	4.5	3	IV½–V½.	319 15 4.7	51.1	3.5	57.2	59.3	5.9	0.28	29.237	. .	28.909
	56	O. Arg. S. 15359. .	8.5	3	III–VII.	88 40 6.0	56.4	4.2	2.0	1.1	8.2	2.98	29.427	. .	29.101
	57	η Ursæ Minoris . .	. .	3	IV½–V½.	342 50 3.9	52.0	4.4	58.2	0.4	4.9	0.63	27.919	. .	27.584
	58	O. Arg. S. 15847. .	8.5	3	III–VII.	83 25 6.1	56.4	4.7	3.5	0.0	7.3	3.00	28.336	. .	28.008
	59	Lacaille 7023. . .	7.5	3	III–VII.	91 55 5.6	56.1	3.7	3.0	59.4	5.9	2.28	30.649	. .	30.323
	60	Anon. $16^h\ 52^m\ 24^s$.	9.5	2	III, VII.	96 0 5.7	58.3	5.6	5.1	2.2	8.9	4.30	33.912	. .	33.590
	61	O. Arg. S. 16574. .	8.0	3	III–VII.	88 40 5.0	56.8	3.8	2.0	0.5	6.9	2.50	28.795	. .	28.469
	62	Anon. $17^h\ 18^m\ 21^s$.	8.5	3	III–VII.	90 20 4.6	55.9	2.9	1.3	58.6	5.9	1.53	28.951	. .	28.625
	63	Anon. $17^h\ 28^m\ 7^s$.	8.0	3	III–VII.	96 10 7.9	0.8	8.9	6.9	3.9	10.0	6.40	28.076	. .	27.751
	64	Anon. $17^h\ 34^m\ 56^s$.	8.0	2	V, VII.	84 0 5.4	57.9	4.1	2.0	0.6	7.1	2.85	21.828	. .	21.499
	65	B. A. C. 6051. . .	6.5	3	III–VII.	95 15 7.0	58.7	7.6	4.4	2.7	8.0	4.73	26.615	. .	26.290
	66	Anon. $17^h\ 53^m\ 1^s$.	9.0	2	V, IX.	95 50 7.6	59.3	7.8	5.8	3.1	9.8	5.57	35.518	−0.332	35.202

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	29.938	79.8	79.2	+ 2 12.8	N. 52 27 49.9	1 11.3	+ 88 37 20.0	+ 15.6	Y.	
2	29.938	79.7	78.8	— 1 6.9	N. 46 31 5.0	57.8	+ 85 25 41.6	— 15.0	Y.	
3	. .	. .	. .	+ 0 58.2	S. 72 11 2.3	2 49.0	— 33 20 12.5	+ 13.6	Y.	
4	. .	. .	. .	— 3 30.1	N. 38 13 26.5	43.3	+ 77 7 48.6	— 12.7	Y.	
5	29.950	79.2	77.7	+ 1 30.8	S. 63 26 35.3	1 49.6	— 24 34 46.1	+ 10.9	Y.	
6	. .	. .	. .	+ 1 15.9	43 36 17.3	52.4	— 4 43 30.9	+ 6.8	Y.	
7	. .	. .	. .	— 1 33.0	66 33 29.7	2 6.2	— 27 41 57.1	+ 11.0	Y.	
8	29.954	78.9	77.2	+ 2 3.9	71 7 4.3	2 39.4	— 32 16 4.9	+ 11.8	Y.	
9	29.955	78.5	77.0	— 2 0.2	28 28 5.0	29.9	+ 10 25 3.9	+ 2.1	Y.	
10	. .	. .	. .	+ 0 56.1	52 45 58.5	1 12.5	— 13 53 32.2	+ 7.1	Y.	
11	. .	. .	. .	+ 0 16.1	66 35 21.4	2 6.8	— 27 43 49.4	+ 8.3	Y.	
12	29.952	78.0	75.1	+ 2 5.8	S. 54 27 9.3	1 17.3	— 15 34 47.8	+ 7.0	Y.	
13	29.955	77.8	74.8	— 1 55.8	N. 39 16 54.8	45.2	+ 78 11 18.8	— 5.2	Y.	
14	. .	. .	. .	+ 0 29.8	S. 68 40 32.2	2 20.8	— 29 49 14.2	+ 7.9	Y.	
15	. .	. .	. .	+ 0 58.9	S. 19 26 1.9	19.6	+ 19 27 17.3	+ 2.0	Y.	
16	29.952	77.2	73.7	— 0 37.5	N. 60 40 36.6	1 38.4	+ 80 24 6.2	+ 2.8	Y.	Faint.
17	. .	. .	. .	— 0 27.9	S. 71 24 34.4	2 43.2	— 32 33 38.8	+ 6.7	Y.	
18	. .	. .	. .	— 2 16.1	76 12 47.0	3 41.8	— 37 22 50.0	+ 6.4	Y.	
19	29.956	77.0	73.3	+ 1 28.6	7 46 33.6	7.6	+ 31 6 57.6	+ 2.2	Y.	
20	. .	. .	. .	. .	. . . . .	. .	. . . .	. .	Y.	
21	30.188	77.3	74.9	— 2 25.2	71 12 38.7	2 42.3	— 32 21 42.2	+ 13.6	Y.	
22	. .	. .	. .	— 2 21.9	71 12 42.0	2 42.3	— 32 21 45.5	+ 13.6	Y.	
23	. .	. .	. .	+ 0 28.0	43 30 27.9	53.0	— 4 37 42.1	+ 5.4	Y.	
24	. .	. .	. .	— 0 26.0	71 14 37.0	2 42.9	— 32 23 41.1	+ 12.8	Y.	
25	. .	. .	. .	— 3 3.4	S. 1 21 58.0	1.3	+ 37 31 39.5	— 5.7	Y.	
26	30.200	77.0	73.2	— 1 43.4	N. 73 46 40.9	3 9.7	+ 67 16 30.6	+ 10.7	Y.	
27	. .	. .	. .	— 1 38.0	N. 35 46 34.4	40.4	+ 74 40 53.6	— 10.2	Y.	
28	. .	. .	. .	— 1 55.8	S. 28 28 7.7	30.4	+ 10 25 0.7	+ 1.5	Y.	Very faint.
29	30.196	76.3	72.0	+ 1 37.7	S. 68 51 41.6	2 23.9	— 30 0 26.7	+ 10.7	Y.	
30	. .	. .	. .	+ 1 13.8	N. 48 48 42.0	1 4.0	+ 87 43 22.8	— 8.9	Y.	
31	. .	. .	. .	+ 0 7.5	S. 71 35 14.4	2 46.8	— 32 44 22.4	+ 10.6	Y.	
32	. .	. .	. .	— 1 48.5	54 8 15.2	+ 1 17.5	— 15 15 53.9	+ 7.0	Y.	
33	30.206	76.0	71.6	— 0 20.3	57 54 42.8	−32 42.7	— 18 28 21.3	. .	Y.	
34	. .	. .	. .	. .	. . . . .	. .	. . . .	. .	Y.	
35	. .	. .	. .	. .	. . . . .	. .	. . . .	. .	Y.	
36	. .	. .	. .	. .	. . . . .	. .	. . . .	. .	Y.	
37	30.208	75.6	69.5	— 2 23.6	76 12 42.1	+ 3 45.3	— 37 22 48.6	+ 7.1	Y.	
38	. .	. .	. .	+ 1 30.4	75 56 39.2	3 41.2	— 37 6 41.6	+ 6.6	Y.	
39	. .	. .	. .	+ 0 28.8	6 15 31.3	6.2	+ 32 38 1.3	+ 1.4	Y.	
40	30.204	75.1	69.2	— 1 25.2	36 3 38.2	41.1	+ 2 49 19.5	+ 3.0	Y.	
41	29.988	80.6	77.9	+ 1 43.5	68 51 45.3	2 21.4	— 30 0 27.9	+ 10.8	Y.	
42	. .	. .	. .	— 1 31.7	55 8 31.7	1 19.0	— 16 16 11.9	+ 7.4	Y.	
43	. .	. .	. .	— 1 48.1	54 8 15.0	1 16.2	— 15 15 52.4	+ 6.9	Y.	
44	29.992	80.0	76.8	— 0 1.2	S. 72 5 4.9	2 48.8	— 33 14 14.9	+ 10.2	Y.	
45	29.990	79.7	76.5	— 0 52.8	N. 57 35 46.9	1 26.8	+ 83 29 7.5	+ 7.0	Y.	
46	29.992	79.5	76.4	+ 0 6.6	29 14 48.1	30.9	+ 68 8 57.8	— 6.0	Y.	
47	. .	. .	76.0	+ 1 10.2	N. 37 8 43.3	41.9	+ 76 3 4.0	— 5.3	Y.	Cloudy.
48	. .	. .	. .	— 2 55.5	S. 17 7 8.1	17.1	+ 21 46 13.6	0.0	Y.	
49	29.994	79.0	75.0	— 1 28.8	N. 60 6 25.1	1 36.0	+ 80 58 20.1	+ 4.3	Y.	
50	. .	. .	. .	+ 1 47.3	S. 8 51 52.2	8.7	+ 30 1 37.9	— 0.4	Y.	
51	. .	. .	. .	. .	. . . . .	. .	. . . .	. . .	Y.	
52	30.114	82.1	77.1	+ 0 53.1	5 5 50.8	4.9	+ 33 47 43.1	— 5 3	Y.	
53	. .	. .	. .	— 0 47.9	48 44 17.4	1 3.1	— 9 51 41.7	+ 5.7	Y.	
54	. .	. .	. .	+ 0 22.7	S. 66 35 20.1	2 7.3	— 27 43 48.6	+ 10.0	Y.	
55	30.116	81.3	75.5	+ 0 34.1	N. 60 44 25.6	1 38.8	+ 80 20 16.8	+ 8.7	Y.	
56	. .	. .	. .	+ 0 28.1	S. 68 40 31.1	2 21.4	— 29 49 13.7	+ 8.9	Y.	
57	30.128	80.7	75.0	+ 1 15.7	37 8 43.7	42.1	+ 76 3 4.6	— 6.9	Y.	
58	. .	. .	. .	+ 1 2.4	63 26 5.4	1 50.8	— 24 34 17.4	+ 6.7	Y.	
59	30.133	80.3	74.8	— 0 10.1	71 54 52.2	2 48.5	— 33 4 1.9	+ 7.4	Y.	
60	. .	. .	. .	— 1 52.4	75 58 11.9	3 38.6	— 37 8 11.7	+ 7.5	Y.	Very faint.
61	. .	. .	. .	+ 0 47.9	68 40 50.4	2 21.6	— 29 49 33.2	+ 5.6	Y.	
62	30.132	78.8	74.8	+ 0 43.1	70 20 44.6	2 34.5	— 31 29 40.3	+ 5.3	Y.	
63	. .	. .	. .	+ 1 10.4	76 11 16.8	3 42.0	— 37 21 20.0	+ 5.3	Y.	
64	. .	. .	. .	+ 4 26.2	64 4 29.1	1 53.9	— 25 12 44.2	+ 3.8	Y.	
65	. .	. .	. .	+ 1 56.2	75 17 0.9	3 28.3	— 36 26 50.4	+ 4.0	Y.	
66	. .	. .	. .	— 2 42.9	S. 75 47 22.7	3 35.8	— 36 57 19.7	+ 3.7	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
1872.						°	′	″	″	″	″	″	″	″	r.	r.	r.
June 28	1	70 Ophiuchi	5.0	3	V–IX.	56	20	8.8	58.2	7.2	5.2	3.8	10.7	5.65	28.444	−0.332	28.112
	2	ε Sagittarii	93	20	5.5	58.0	4.8	5.0	0.3	7.2	3.47	35.925	. .	35.600			
	3	Nadir	. .	.	. .	200	0	2.9	53.2	2.0	0.8	57.4	6.2	0.42	30.200	. .	. .
July 2	4	O. Arg. S. 14246	5.5	3	III–VII.	80	25	8.9	56.7	5.7	2.7	2.7	10.2	4.48	32.186	−0.360	31.830
	5	O. Arg. N. 15259	8.3	3	IV–VI.	351	35	5.7	54.8	6.8	0.2	4.0	8.1	3.27	32.545	. .	32.178
	6	ζ^1 Libræ	5.5	3	III–VII.	75	10	10.0	57.1	7.1	4.2	3.2	10.9	5.42	33.299	. .	32.942
	7	Anon. $15^h\ 29^m\ 32^s$	8.8	2	V, IX.	90	55	8.8	56.7	5.7	2.0	1.2	9.7	4.02	31.006	. .	30.660
	8	B. A. C. 1211, S. P.	5.0	3	IV½–V½.	319	15	4.7	50.9	4.1	56.8	58.8	6.0	0.22	29.336	. .	28.980
	9	τ Coronæ Borealis	. .	3	III–VII.	22	5	8.0	57.2	6.8	3.2	4.7	11.0	5.15	31.524	. .	31.157
	10	η Ursæ Minoris	. .	3	IV½–V½.	342	50	6.1	53.8	7.0	0.3	2.7	7.7	2.93	28.029	. .	27.666
	11	β Herculis	4.5	3	III–VII.	37	5	9.1	56.8	5.8	3.1	2.7	10.3	4.63	26.469	. .	26.105
	12	Anon. $16^h\ 33^m\ 34^s$	8.5	3	III–VII.	91	25	9.6	0.1	7.8	4.4	3.4	10.9	6.03	31.204	. .	30.850
	13	Lacaille 7023	7.5	3	III–VII.	91	55	7.1	58.1	5.8	4.1	1.4	8.0	4.08	30.597	. .	30.243
	14	B. A. C. 5746	7.0	3	IV–VI.	79	10	9.9	59.1	7.8	5.6	4.6	11.7	6.45	28.769	. .	28.410
	15	O. Arg. S. 16574	8.0	3	III–VII.	88	40	7.9	58.2	5.6	3.1	1.4	10.1	4.38	28.739	. .	28.385
	16	Anon. $17^h\ 18^m\ 19^s$	8.5	3	III–VII.	90	20	5.4	55.3	3.3	0.0	57.5	6.2	1.28	29.103	. .	28.749
	17	Nadir	. .	.	. .	200	0	5.9	53.3	4.0	2.1	59.0	8.4	2.12	30.281	. .	. .
5	18	O. Arg. S. 15896	9.0	3	III–VII.	86	5	6.2	56.2	5.7	4.5	0.2	7.9	3.45	31.319	−0.314	31.010
	19	50 Herculis	6.5	3	III–VII.	28	50	6.0	55.0	4.7	3.2	0.9	8.0	2.97	26.861	. .	26.541
	20	ε Herculis	5.5	3	III–VII.	27	45	10.1	1.2	8.7	7.1	5.3	12.2	7.43	27.730	. .	27.410
	21	B. A. C. 1619, S. P.	. .	3	IV½–V½.	316	45	6.7	54.2	6.8	2.4	1.6	9.1	3.47	27.440	. .	27.129
	22	B. A. C. 5919	5.5	3	III–VII.	56	5	5.9	55.1	4.8	3.3	0.1	7.7	2.82	33.041	. .	32.727
	23	ι Herculis	. .	2	III–VII.	12	50	6.7	57.2	7.5	4.2	2.7	8.9	4.53	32.046	. .	31.717
	24	ψ^1 Draconis	. .	2	IV½, V½.	346	40	8.2	56.8	10.9	4.9	3.2	9.7	5.62	27.584	. .	27.267
	25	ψ^2 Draconis	. .	1	V.	"	"	"	"	"	"	"	"	"	28.484	. .	28.170
	26	O. Arg. S. 17817	9.2	3	III–VII.	79	55	7.2	58.3	7.9	6.0	1.8	9.1	5.05	34.589	. .	34.279
	27	18 Sagittarii	8.0	3	III–VII.	89	50	7.7	59.5	8.5	6.3	2.2	8.3	5.42	28.865	. .	28.557
	28	Nadir	. .	.	. .	200	0	6.1	55.9	6.4	5.2	59.8	9.0	3.73	30.285	. .	. .
6	29	ν^1 Libræ	4.5	3	III–VII.	74	40	7.4	58.0	7.0	6.1	2.2	9.4	5.02	34.318	−0.328	33.993
	30	ι Bootis	5.5	2	VIII, IX.	33	30	9.8	0.8	10.1	8.9	5.7	13.0	8.05	28.328	. .	27.980
	31	B. A. C. 5140	. .	3	I–5.	331	10	6.2	52.5	6.3	0.8	58.7	6.2	1.78	28.047	. .	27.716
	32	B. A. C. 5117	7.8	3	III–VII.	83	35	8.1	57.3	5.9	5.9	1.2	8.1	4.42	35.215	. .	34.891
	33	Anon. $15^h\ 27^m\ 31^s$	8.3	3	V–IX.	"	"	"	"	"	"	"	"	"	35.497	. .	35.178
	34	γ Camelopardi, S. P.	. .	3	IV–VI.	309	50	9.6	56.2	9.3	2.9	2.6	9.7	5.05	26.546	. .	26.226
	35	18 Ursæ Minoris	7.0	3	IV½–V½.	338	30	5.9	53.7	7.4	2.9	0.4	6.7	2.83	27.884	. .	27.552
	36	B. A. C. 1247, S. P.	. .	3	IV½–V½.	322	25	6.9	52.8	8.2	3.1	1.8	6.9	6.28	31.986	. .	31.664
	37	Nadir	. .	.	. .	200	0	6.4	54.2	5.1	2.9	59.2	8.2	2.67	30.265	. .	. .
12	38	τ Coronæ Borealis	. .	3	III–VII.	22	5	9.4	59.2	8.5	7.0	5.8	10.9	6.80	31.620	−0.360	31.253
	39	B. A. C. 1300, S. P.	. .	2	IV½, V½.	303	45	8.0	57.1	8.9	7.0	4.3	7.6	5.48	27.312	. .	26.954
	40	η Draconis	. .	3	IV–VI.	357	5	8.3	57.2	9.5	6.4	3.2	oblit.	5.55	29.372	. .	29.007
	41	η Herculis	4.5	3	III–VII.	19	45	4.1	55.2	4.2	2.0	1.2	5.0	1.95	33.231	. .	32.863
	42	50 Herculis	. .	3	IV–VI.	28	50	9.8	59.8	8.7	8.3	5.4	10.9	7.15	27.079	. .	26.717
	43	Weisse 1048	9.2	3	III–VII.	68	0	6.1	58.1	6.8	4.3	1.7	9.3	4.38	34.509	. .	34.151
	44	ω Herculis	5.5	3	III–VII.	26	15	7.7	58.9	7.1	5.5	2.4	8.0	4.93	29.647	. .	29.281
	45	O. Arg. S. 16832	9.0	3	V–IX.	74	45	7.2	58.2	8.1	6.8	2.0	8.3	5.10	26.864	. .	26.509
	46	Nadir	. .	.	. .	200	0	7.5	59.1	8.7	8.2	1.6	11.2	6.05	30.405	. .	. .
Aug. 8	47	Anon. $16^h\ 56^m\ 22^s$	7.5	2	III, V.	79	10	6.1	0.1	5.8	2.2	2.1	9.1	4.23	31.160	−0.263	30.900
	48	B. A. C. 5746	6.5	3	V–IX.	"	"	"	"	"	"	"	"	"	28.597	. .	28.340
	49	ω Herculis	. .	3	III–VII.	26	15	9.2	2.9	8.9	4.8	6.2	12.2	7.37	29.795	. .	29.526
	50	b Ophiuchi	6.0	3	IV–VI.	82	55	5.7	57.3	2.8	1.1	59.7	6.6	2.20	29.873	. .	29.611
	51	Anon. $17^h\ 28^m\ 6^s$	8.5	3	V–IX.	96	10	5.3	0.4	6.0	3.1	2.2	9.9	4.48	27.745	. .	27.496
	52	Anon. $17^h\ 29^m\ 12^s$	8.5	3	V–IX.	"	"	"	"	"	"	"	"	"	31.152	. .	30.911
	53	Anon. $17^h\ 38^m\ 51^s$	8.0	3	III–VII.	93	30	5.8	59.2	4.2	2.9	1.1	8.5	3.62	27.283	. .	27.027
	54	Anon. $17^h\ 44^m\ 48^s$	7.8	1	V.	"	"	"	"	"	"	"	"	"	25.620	. .	25.357
	55	Anon. $17^h\ 45^m\ 43^s$	7.0	3	V–IX.	"	"	"	"	"	"	"	"	"	25.649	. .	25.399
	56	Anon. $17^h\ 56^m\ 6^s$	8.0	3	I–IX.	83	5	6.9	58.6	5.0	2.9	1.3	8.1	3.80	27.400	. .	27.159
	57	Anon. $17^h\ 56^m\ 25^s$	7.5	3	IV–VI.	"	"	"	"	"	"	"	"	"	34.289	. .	34.027
	58	O. Arg. S. 17817	9.0	3	V–IX.	79	55	7.8	0.8	7.2	4.2	3.8	10.4	5.70	34.343	. .	34.086
	59	ε Sagittarii	3.0	3	III–VII.	93	20	6.1	58.7	4.2	2.9	0.8	8.0	3.45	35.660	. .	35.404
	60	1 Aquilæ	. .	3	III–VII.	67	15	5.7	58.7	6.3	2.5	1.0	8.3	3.75	35.165	. .	34.903
	61	φ Sagittarii	4.5	3	III–VII.	86	0	8.9	1.6	9.2	6.8	4.1	10.6	6.87	32.807	. .	32.549
	62	σ Sagittarii	. .	3	III–VII.	85	20	7.8	0.6	9.0	7.8	4.3	11.0	6.75	32.681	. .	32.423
	63	τ Sagittarii	. .	3	III–VII.	86	45	7.8	1.2	8.2	6.3	3.3	10.7	6.25	34.647	. .	34.389
	64	ρ^2 Sagittarii	6.0	3	III–VII.	77	25	3.7	58.1	5.1	2.1	1.5	6.4	2.82	30.815	. .	30.555
	65	Nadir	. .	.	. .	200	0	4.1	56.9	4.1	3.0	0.0	9.5	2.93	30.209	−0.263	. .

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	. .	. .	. .	+ 0 59.1	S. 36 21 4.8	41.0	+ 2 31 53.0	+ 1.2	Y.	
2	. .	. .	. .	— 2 55.4	73 17 8.1	3 2.9	— 34 26 32.2	+ 1.9	Y.	
3	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
4	29.972	88.0	84.2	— 0 57.3	S. 60 24 7.2	1 35.4	— 21 32 3.8	+ 9.3	Y.	
5	. .	. .	. .	— 1 8.2	N. 28 26 4.9	29.5	+ 67 20 13.2	— 10.9	Y.	
6	. .	. .	. .	— 1 32.1	S. 55 8 33.3	1 18.0	— 16 16 12.5	+ 7.4	Y.	
7	29.970	87.3	83.2	— 0 20.7	S. 70 54 43.4	2 35.9	— 32 3 40.5	+ 11.2	Y.	
8	29.996	87.0	82.8	+ 0 31.9	N. 60 44 27.8	1 37.1	+ 80 20 16.3	+ 9.2	Y.	
9	. .	. .	. .	— 0 36.2	S. 2 4 28.9	2.0	+ 36 49 7.9	— 4.8	Y.	
10	. .	. .	. .	+ 1 13.1	N. 37 8 44.0	41.4	+ 76 3 4.2	— 7.7	Y.	
11	29.960	86.0	81.6	+ 2 2.0	S. 17 7 6.6	16.8	+ 21 46 15.4	— 1.8	Y.	
12	. .	. .	. .	— 0 26.6	71 24 39.4	2 40.8	— 32 33 41.4	+ 8.4	Y.	
13	. .	. .	. .	— 0 7.6	71 54 56.5	2 45.6	— 33 4 3.3	+ 7.8	Y.	
14	29.970	85.2	81.0	+ 0 49.8	59 10 56.2	1 31.4	— 20 18 48.8	+ 5.2	Y.	
15	. .	. .	. .	+ 0 50.6	68 40 54.9	2 19.1	— 29 49 35.2	+ 5.8	Y.	
16	29.962	85.0	81.1	+ 0 39.1	70 20 40.4	2 31.7	— 31 29 33.3	+ 5.6	Y.	
17	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
18	30.035	84.5	80.2	— 0 31.6	66 4 31.8	2 3.2	— 27 12 56.2	+ 7.4	Y.	
19	. .	. .	. .	+ 1 48.3	8 51 51.3	8.6	+ 30 1 38.9	— 3.2	Y.	
20	. .	. .	. .	+ 1 21.1	S. 7 46 28.5	7.5	+ 31 7 2.8	— 3.2	Y.	
21	30.036	83.8	78.2	+ 1 29.9	N. 63 13 26.6	1 48.8	+ 77 51 5.8	+ 4.7	Y.	
22	. .	. .	. .	— 1 25.4	S. 36 3 37.4	40.1	+ 2 49 21.3	+ 0.9	Y.	
23	. .	. .	. .	— 0 53.8	N. 7 10 49.2	7.0	+ 46 4 35.0	— 3.1	Y.	
24	. .	. .	. .	+ 1 25.6	33 18 28.8	36.7	+ 72 12 44.3	— 3.3	Y.	
25	30.340	83.0	77.1	+ 0 57.3	N. 33 18 57.1	36.7	+ 72 13 12.6	— 3.3	Y.	
26	. .	. .	. .	— 2 14.0	S. 59 52 51.0	1 35.9	— 21 0 48.1	+ 2.2	Y.	
27	30.344	82.0	76.6	+ 0 45.2	69 50 50.6	2 30.9	— 30 59 42.7	+ 2.6	Y.	
28	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
29	. .	. .	. .	— 2 5.0	54 38 0.0	1 17.1	— 15 45 38.3	+ 7.5	Y.	
30	30.076	85.0	81.4	+ 1 3.2	S. 13 31 11.3	13.2	+ 25 22 14.3	— 4.6	Y.	
31	30.080	84.3	80.5	+ 1 11.5	N. 48 48 46.7	1 2.7	+ 87 43 28.2	— 11.8	Y.	
32	. .	. .	. .	— 2 33.2	S. 63 32 31.3	1 50.0	— 24 40 42.5	+ 9.4	Y.	
33	. .	. .	. .	— 2 42.2	S. 63 32 22.3	1 50.0	— 24 40 33.5	+ 9.4	Y.	
34	30.082	84.2	80.2	+ 1 58.2	N. 70 7 56.8	2 30.8	+ 70 55 53.6	+ 9.4	Y.	
35	30.084	84.0	80.0	+ 1 16.7	41 28 40.5	48.6	+ 80 23 7.9	— 10.6	Y.	
36	. .	. .	. .	— 0 52.1	N. 57 35 45.8	1 26.5	+ 83 29 8.9	+ 9.5	Y.	
37	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
38	29.960	81.8	76.7	— 0 39.2	S. 2 4 27.6	2.0	+ 36 49 9.2	— 6.8	Y.	
39	29.964	81.5	76.1	+ 1 35.4	N. 76 13 18.1	3 40.8	+ 64 49 22.3	+ 7.7	Y.	
40	29.952	81.2	75.3	+ 0 31.1	22 54 23.4	23.4	+ 61 48 25.6	— 9.4	Y.	Corr., + 1″.48, applied to the mean of B, C, D, and E.
41	. .	. .	. .	— 1 29.7	N. 0 16 27.7	0.3	+ 39 10 6.8	— 6.3	Y.	
42	. .	. .	. .	+ 1 42.8	S. 8 51 50.0	8.6	+ 30 1 40.2	— 4.7	Y.	
43	29.960	80.3	74.8	— 2 10.0	47 57 54.4	1 1.3	— 9 5 16.9	+ 2.8	Y.	
44	. .	. .	. .	+ 0 22.5	6 15 27.4	6.1	+ 32 38 5.3	— 4.5	Y.	
45	. .	. .	. .	+ 1 49.3	54 46 54.4	1 18.3	— 15 54 33.9	+ 3.3	Y.	
46	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
47	. .	. .	. .	— 0 28.2	59 9 36.0	1 32.2	— 20 17 29.4	+ 5.2	Y.	
48	30.212	83.5	80.7	+ 0 52.0	59 10 56.2	1 32.3	— 20 18 49.7	+ 5.2	Y.	
49	. .	. .	. .	+ 0 14.8	6 15 22.2	6.1	+ 32 38 10.5	— 9.2	Y.	
50	30.220	83.1	80.0	+ 0 12.2	62 55 14.4	1 47.7	— 24 3 23.3	+ 5.5	Y.	
51	. .	. .	. .	+ 1 18.4	76 11 22.9	3 40.5	— 37 21 24.6	+ 8.8	Y.	
52	. .	. .	. .	— 0 28.5	76 9 36.0	3 40.0	— 37 19 37.2	+ 8.8	Y.	
53	30.224	83.0	79.2	+ 1 33.1	73 31 36.7	3 4.8	— 34 41 2.7	+ 7.5	Y.	
54	. .	. .	. .	+ 2 25.4	73 32 29.0	3 4.9	— 34 41 55.1	+ 7.1	Y.	Many stars in the field.
55	. .	. .	. .	+ 2 24.1	73 32 27.7	3 5.0	— 34 41 53.9	+ 7.1	Y.	
56	. .	. .	. .	+ 1 29.0	63 6 32.8	1 48.9	— 24 14 42.9	+ 3.7	Y.	
57	. .	. .	. .	— 2 6.1	63 2 57.7	1 48.6	— 24 11 7.5	+ 3.7	Y.	
58	30.228	82.5	78.1	— 2 7.9	59 52 57.8	1 35.4	— 21 0 54.4	+ 2.4	Y.	
59	. .	. .	. .	— 2 49.2	73 17 14.2	3 2.5	— 34 26 37.9	+ 5.2	Y.	
60	30.230	82.0	77.2	— 2 33.5	47 12 30.2	1 0.0	— 8 19 51.4	— 1.6	Y.	
61	. .	. .	. .	— 1 19.8	65 58 47.1	2 4.0	— 27 7 12.3	+ 2.1	Y.	
62	30.234	82.0	77.2	— 1 15.9	65 18 50.9	2 0.3	— 26 27 12.4	+ 1.3	Y.	
63	. .	. .	. .	— 2 17.4	66 42 48.8	2 8.4	— 27 51 18.4	+ 0.7	Y.	
64	30.234	81.3	76.3	— 0 17.4	S. 57 24 45.4	1 26.9	— 18 32 33.5	— 1.8	Y.	
65	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
1872.						° ′ ″	″	″	″	″	″	″	r.	r.	r.
Aug. 17	1	*b* Ophiuchi	. .	3	III–VII.	82 55 4.4	55.9	2.4	0.1	57.3	5.6	0.95	29.833	−0.275	29.562
	2	Anon. $17^h\ 26^m\ 18^s$.	6.5	3	III–VII.	91 20 8.0	1.0	6.7	5.3	1.8	9.8	5.43	29.500	. .	29.231
	3	Anon. $17^h\ 33^m\ 18^s$.	7.5	2	VII, IX.	90 55 6.3	58.8	5.8	3.0	1.2	8.0	3.85	28.271	. .	28.014
	4	Lacaille 7435. . .	7.5	3	III–VII.	94 40 7.9	0.3	7.0	5.7	3.6	10.5	5.83	28.273	. .	28.005
	5	Anon. $17^h\ 46^m\ 28^s$.	8.5	2	VII, IX.	93 35 6.9	58.7	4.2	3.9	1.7	9.1	4.08	32.512	. .	32.256
	6	Anon. $17^h\ 48^m\ 30^s$.	8.5	2	VII, IX.	" " "	"	"	"	"	"	"	31.765	. .	31.509
	7	ε Telescopii . . .	. .	3	V–IX.	104 45 6.2	58.7	5.9	3.5	0.2	6.6	3.52	33.544	. .	33.288
	8	18 Sagittarii	7.0	3	V–IX.	89 50 5.8	58.0	4.4	2.0	0.8	7.0	3.00	28.636	. .	28.372
	9	B. A. C. 6256 . .	8.0	3	III–VII.	90 30 7.5	0.7	6.2	3.8	2.3	8.4	4.82	35.511	. .	35.242
	10	Anon. $18^h\ 21^m\ 6^s$.	8.0	3	III–VII.	" " "	"	"	"	"	"	"	31.729	. .	31.458
	11	ϕ Sagittarii	5.0	3	III–VII.	86 0 6.8	59.3	5.7	5.0	1.8	9.0	4.60	32.724	. .	32.454
	12	σ Sagittarii	. .	3	III–VII.	85 20 8.0	0.2	8.0	8.1	4.1	11.1	6.58	32.645	. .	32.375
	13	τ Sagittarii	. .	3	III–VII.	86 45 6.4	58.2	4.9	6.0	1.0	8.9	4.23	34.546	. .	34.276
	14	Nadir	. .	.	. .	200 0 2.4	56.1	3.1	1.4	58.6	7.1	1.45	30.172	. .	. .
20	15	ε Ursæ Minoris . .	. .	2	I–5.	336 40 4.6	53.7	4.2	55.2	1.2	7.1	1.00	30.983	−0.280	30.702
	16	B. A. C. 1619, S. P. .	. .	3	IV–VI.	316 45 6.1	55.1	6.1	58.1	3.6	8.4	2.90	27.615	. .	27.348
	17	*b* Ophiuchi	. .	3	III–VII.	82 55 4.7	55.1	1.2	58.5	58.0	6.7	0.70	29.820	. .	29.544
	18	Anon. $17^h\ 33^m\ 17^s$.	8.3	3	III–VII.	90 55 7.7	58.7	5.1	1.0	1.6	9.4	3.92	28.279	. .	28.005
	19	B. A. C. 5968. . .	8.3	2	VII, IX.	" " "	"	"	"	"	"	"	32.995	. .	32.732
	20	Anon. $17^h\ 37^m\ 58^s$.	8.0	3	III–VII.	93 40 7.9	58.8	3.8	2.1	2.2	10.4	4.20	29.412	. .	29.139
	21	Anon. $17^h\ 38^m\ 43^s$.	8.3	2	VII, IX.	" " "	"	"	"	"	"	"	33.156	. .	32.896
	22	Anon. $17^h\ 47^m\ 54^s$.	9.0	3	III–VII.	93 20 6.8	58.9	3.9	1.8	1.3	9.9	3.77	31.958	. .	31.685
	23	Anon. $17^h\ 48^m\ 16^s$.	8.5	1	IX.	" " "	"	"	"	"	"	"	28.012	. .	27.762
	24	Anon. $17^h\ 57^m\ 2^s$. .	8.7	3	III–VII.	82 30 6.8	58.2	3.7	1.1	0.8	8.3	3.15	34.335	. .	34.059
	25	18 Sagittarii	. .	3	III–VII.	89 50 9.6	2.9	7.7	5.7	5.2	12.4	7.25	28.770	. .	28.496
	26	B. A. C. 6256. . .	8.3	3	III–VII.	90 30 5.7	57.1	3.1	58.1	59.8	6.2	1.67	35.317	. .	35.043
	27	Anon. $18^h\ 21^m\ 4^s$.	8.0	3	III–VII.	" " "	"	"	"	"	"	"	31.606	. .	31.332
	28	Nadir	. .	.	. .	200 0 7.7	57.8	5.3	2.1	1.8	11.8	4.42	30.275	. .	. .
24	29	B. A. C. 5960. . .	7.0	1	IX.	91 0 11.1	4.6	10.3	9.2	5.9	12.1	8.87	33.089	−0.265	32.849
	30	Anon. $17^h\ 31^m\ 50^s$.	7.5	1	V.	" " "	"	"	"	"	"	"	26.622	. .	26.357
	31	Anon. $17^h\ 35^m\ 7^s$.	8.0	3	IV–VI.	" " "	"	"	"	"	"	"	28.275	. .	28.012
	32	O. Arg. S. 17284. .	9.0	3	V–IX.	84 40 6.8	59.4	6.8	5.4	1.7	8.7	4.80	35.804	. .	35.547
	33	B. A. C. 6074, (1st *).	. .	2	VII, IX.	89 5 7.9	2.0	6.0	4.9	2.2	10.2	5.53	29.358	. .	29.109
	34	B. A. C. 6074, (2d *).	. .	1	V.	" " "	"	"	"	"	"	"	29.234	. .	28.969
	35	70 Ophiuchi, (1st *). .	. .	2	I, IX.	56 20 6.7	59.4	. .	5.1	. .	10.7	5.20	28.485	. .	28.218
	36	70 Ophiuchi, (2d *). .	. .	3	IV–VI.	" " "	"	. .	"	. .	"	"	28.445	. .	28.180
	37	δ Ursæ Minoris . .	. .	3	I–5.	332 20 3.0	55.8	6.0	1.9	0.6	6.2	2.25	34.098	. .	33.831
	38	1 Aquilæ	. .	3	III, V, IX.	67 15 6.6	0.9	8.0	6.0	2.2	10.2	5.65	35.236	. .	34.973
	39	51 Cephei, S. P. . . .	. .	3	I–5.	326 10 8.0	0.0	9.7	4.7	4.0	9.2	5.93	32.422	. .	32.160
	40	σ Sagittarii	. .	3	V–IX.	85 20 6.8	59.3	8.1	7.8	2.9	9.1	5.67	32.646	. .	32.389
	41	Dorpat 2434, (1st *) .	8.5	2	IV, VI.	59 45 9.5	2.9	9.5	8.8	5.5	13.9	8.35	28.354	. .	28.089
	42	Dorpat 2434, (2d *) .	8.5	2	VIII, IX.	" " "	"	"	"	"	"	"	27.798	. .	27.530
	43	ρ^2 Sagittarii	. .	3	III–VII.	77 25 6.7	0.8	7.2	6.0	1.9	9.0	5.27	30.926	. .	30.664
	44	Anon. $19^h\ 21^m\ 44^s$.	9.0	3	V–IX.	84 55 7.3	0.9	8.4	8.0	4.1	11.1	6.63	29.826	. .	29.569
	45	h^1 Sagittarii	5.5	2	III, VII.	83 50 6.7	0.2	6.5	6.8	1.8	9.0	5.17	27.440	. .	27.182
	46	α Sagittæ	5.0	3	V–IX.	41 10 9.2	1.9	7.9	9.9	4.1	14.0	7.83	30.829	. .	30.555
	47	ω Sagittarii	6.0	3	III–VII.	85 30 5.6	58.8	6.9	7.1	1.2	7.9	4.58	30.834	. .	30.573
	48	O. Arg. S. 20145. .	9.0	3	III–VII.	81 50 6.8	0.7	6.8	7.7	2.1	8.4	5.42	28.694	. .	28.433
	49	64 Aquilæ	7.0	3	III–VII.	59 55 8.0	2.2	8.8	9.0	4.2	13.1	7.55	29.738	. .	29.473
	50	B. A. C. 6969. . .	. .	3	III–VII.	22 30 6.2	2.1	7.0	6.4	3.9	10.1	5.95	27.398	. .	27.126
	51	Nadir	. .	.	. .	200 0 2.2	57.2	3.5	3.3	58.2	6.5	1.82	30.177	. .	. .
30	52	B. A. C. 5960. . .	7.0	3	IV–VI.	91 0 8.3	2.9	7.9	7.8	2.2	7.9	6.17	33.072	−0.291	32.783
	53	Anon. $17^h\ 31^m\ 53^s$.	7.0	2	VIII, IX.	" " "	"	"	"	"	"	"	26.666	. .	26.396
	54	B. A. C. 5964. . .	6.5	1	IX.	" " "	"	"	"	"	"	"	31.198	. .	30.934
	55	Lacaille 7469. . .	6.5	3	IV–VI.	90 10 7.8	2.7	6.9	7.5	1.8	6.9	5.60	33.021	. .	32.732
	56	O. Arg. S. 17394. .	8.3	3	V–IX.	83 55 10.0	4.4	11.2	11.8	5.1	10.1	8.77	29.490	. .	29.207
	57	O. Arg. S. 17449. .	8.0	3	III–VII.	" " "	"	"	"	"	"	"	28.176	. .	27.890
	58	70 Ophiuchi, (1st *). .	6.0	1	V.	56 20 6.9	0.3	7.0	7.0	1.2	8.1	5.08	28.564	. .	28.273
	59	70 Ophiuchi, (2d *). .	8.0	2	III, VII.	" " "	"	"	"	"	"	"	28.540	. .	28.249
	60	Dorpat 2288 . . .	8.0	1	IX.	" " "	"	"	"	"	"	"	25.842	. .	25.544
	61	Taylor 8458	. .	2	III, V.	85 20 5.8	59.2	7.8	8.2	0.3	5.9	4.53	30.240	. .	29.954
	62	Anon. $18^h\ 14^m\ 36^s$.	8.8	2	VI, VIII.	" " "	"	"	"	"	"	"	26.688	. .	26.403
	63	Anon. $18^h\ 14^m\ 39^s$.	9.0	1	IX.	" " "	"	"	"	"	"	"	25.282	. .	25.010
	64	1 Aquilæ	. .	3	III–VII.	67 15 7.6	3.2	10.2	10.1	2.9	10.0	7.33	35.378	. .	35.088
	65	5 Aquilæ, (1st *) . .	6.0	2	III, VII.	60 0 5.8	59.4	6.2	6.0	59.8	7.1	4.05	33.416	−0.291	33.125

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	30.126	83.0	78.8	+ 0 13.7	S. 62 55 14.7	1 47.4	− 24 3 23.3	+ 5.7	Y.	
2	. .	. .	. .	+ 0 24.1	71 20 29.5	2 41.5	− 32 29 32.2	+ 8.0	Y.	
3	. .	. .	. .	+ 1 2.2	70 56 6.0	2 38.2	− 32 5 5.4	+ 7.5	Y.	
4	30.128	83.0	79.0	+ 1 2.5	74 41 8.3	3 18.5	− 35 50 48.0	+ 8.4	Y.	
5	. .	. .	. .	− 1 10.7	73 33 53.4	3 4.8	− 34 43 19.4	+ 7.7	Y.	
6	. .	. .	. .	− 0 47.2	73 34 16.7	3 4.9	− 34 43 42.8	+ 7.6	Y.	
7	30.134	82.4	78.3	− 1 43.0	84 43 20.5	8 54.1	− 45 58 35.8	+ 10.0	Y.	
8	. .	. .	. .	+ 0 51.0	69 50 54.0	2 29.4	− 30 59 44.6	+ 5.1	Y.	
9	. .	. .	. .	− 2 41.2	70 27 20.7	2 34.3	− 31 36 16.2	+ 4.9	Y.	
10	. .	. .	. .	− 0 45.7	70 29 19.2	2 34.8	− 31 38 15.2	+ 4.8	Y.	
11	30.136	81.8	77.3	− 1 16.8	65 58 47.8	2 3.6	− 27 7 12.6	+ 2.6	Y.	
12	. .	. .	. .	− 1 14.4	65 18 52.2	2 0.0	− 26 27 13.4	+ 1.9	Y.	
13	30.134	81.3	76.7	− 2 13.9	S. 66 42 50.3	2 8.1	− 27 51 19.6	+ 1.5	Y.	
14	. .	. .	. .	. . .	. . . .	. .	. . . .	. .	Y.	
15	30.192	87.0	85.0	− 0 22.0	N. 43 20 21.0	51.6	+ 82 14 51.4	− 13.6	Y.	
16	30.196	87.0	84.4	+ 1 23.0	N. 63 13 34.1	1 48.1	+ 77 50 59.0	+ 10.9	Y.	
17	. .	. .	. .	+ 0 14.3	S. 62 55 15.0	1 46.7	− 24 3 22.9	+ 5.8	Y.	
18	. .	. .	. .	+ 1 2.5	70 56 6.4	2 37.4	− 32 5 5.0	+ 7.7	Y.	
19	. .	. .	. .	− 1 25.6	70 53 38.4	2 37.0	− 32 2 36.6	+ 5.9	Y.	
20	. .	. .	. .	+ 0 27.0	73 40 31.2	3 4.9	− 34 49 57.3	+ 8.4	Y.	
21	30.206	86.5	83.1	− 1 30.7	73 38 33.5	3 4.5	− 34 47 59.2	+ 8.3	Y.	
22	. .	. .	. .	− 0 52.7	73 19 11.0	3 0.8	− 34 28 33.0	+ 7.7	Y.	
23	. .	. .	. .	+ 1 10.1	73 21 13.9	3 1.2	− 34 30 36.3	+ 7.7	Y.	
24	30.204	86.2	83.0	− 2 7.1	62 27 56.1	1 44.9	− 23 36 2.2	+ 3.9	Y.	
25	. .	. .	. .	+ 0 47.1	69 50 54.3	2 28.6	− 30 59 44.1	+ 5.3	Y.	
26	. .	. .	. .	− 2 37.9	70 27 23.8	2 33.5	− 31 36 18.5	+ 5.1	Y.	
27	30.210	85.8	82.0	− 0 41.7	70 29 20.0	2 33.9	− 31 38 15.1	+ 5.0	Y.	
28	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
29	. .	. .	. .	− 1 29.2	70 58 39.6	2 38.5	− 32 7 39.3	+ 8.2	Y.	
30	. .	. .	. .	+ 1 54.1	71 2 2.9	2 39.0	− 32 11 3.1	+ 7.9	Y.	
31	30.036	82.0	77.6	+ 1 2.2	71 1 11.1	2 38.9	− 32 10 11.2	+ 7.8	Y.	
32	. .	. .	. .	− 2 53.7	64 37 11.1	1 55.8	− 25 45 28.1	+ 5.3	Y.	
33	. .	. .	. .	+ 0 27.9	69 5 33.4	2 23.5	− 30 14 18.1	+ 6.4	Y.	
34	. .	. .	. .	+ 0 32.3	69 5 37.8	2 23.5	− 30 14 22.5	+ 6.4	Y.	
35	. .	. .	. .	+ 0 55.8	36 21 1.0	40.7	+ 2 31 57.1	− 4.1	Y.	} Corr., − 0″.28, applied to mean of A, B, D, F.
36	30.036	81.4	76.5	+ 0 57.0	S. 36 21 2.2	40 7	+ 2 31 55.9	− 4.1	Y.	
37	30.044	81.2	75.6	− 2 0.0	N. 47 41 57.7	1 0.8	+ 86 36 37.3	− 13.0	Y.	
38	. .	. .	. .	− 2 35.7	S. 47 12 29.9	59.8	− 8 19 50.9	− 1.8	Y.	
39	30.052	80.8	75.0	− 1 7.6	N. 53 51 1.7	1 15.8	+ 87 14 3.7	+ 11.9	Y.	
40	. .	. .	. .	− 1 14.8	S. 65 18 50.9	2 0.1	− 26 27 12.2	+ 2.2	Y.	
41	. .	. .	. .	+ 0 59.8	39 46 8.2	46.3	− 0 53 15.7	− 5.0	Y.	
42	. .	. .	. .	+ 1 17.3	39 46 25.7	46.3	− 0 53 33.2	− 5.0	Y.	
43	30.050	79.7	73.2	− 0 20.8	57 24 44.5	1 26.9	− 18 32 32.6	− 1.5	Y.	
44	. .	. .	. .	+ 0 13.5	64 55 20.1	1 58.4	− 26 3 39.7	− 0.0	Y.	
45	. .	. .	. .	+ 1 28.2	63 51 33.4	1 53.1	− 24 59 47.7	− 0.7	Y.	
46	. .	. .	. .	− 0 17.4	21 9 50.5	21.6	+ 17 43 26.7	− 9.7	Y.	
47	30.046	78.5	72.3	− 0 17.9	65 29 46.6	2 1.7	− 26 38 9.5	− 1.6	Y.	
48	. .	. .	. .	+ 0 49.1	61 50 54.5	1 43.8	− 22 58 59.5	− 2.7	Y.	
49	. .	. .	. .	+ 0 16.5	39 55 24.0	46.6	− 1 2 31.8	− 7.4	Y.	
50	30.050	78.1	72.6	+ 1 30.0	2 31 36.0	2.5	+ 36 22 0.3	− 11.7	Y.	
51	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
52	. .	. .	. .	− 1 27.1	70 58 39.0	2 41.1	− 32 7 41.3	+ 8.1	Y.	
53	. .	. .	. .	+ 1 52.8	71 1 59.0	2 41.6	− 32 11 1.8	+ 8.1	Y.	
54	29.864	71.7	66.2	− 0 29.2	70 59 36.9	2 41.3	− 32 8 39.4	+ 8.0	Y.	
55	. .	. .	. .	− 1 25.6	70 8 40.0	2 34.1	− 31 17 35.3	+ 7.3	Y.	
56	. .	. .	. .	+ 0 24.8	63 55 33.6	1 54.3	− 25 3 49.1	+ 4.5	Y.	
57	29.867	71.5	65.2	+ 1 6.1	63 56 14.8	1 54.4	− 25 4 30.4	+ 4.9	Y.	
58	. .	. .	. .	+ 0 54.1	36 20 59.1	41.4	+ 2 31 58.3	− 4.3	Y.	
59	. .	. .	. .	+ 0 54.8	36 20 59.9	41.4	+ 2 31 57.5	− 4.3	Y.	
60	. .	. .	. .	+ 2 19.5	36 22 24.6	41.4	+ 2 30 32.8	− 4.4	Y.	
61	. .	. .	. .	+ 0 1.4	65 20 6.0	2 1.8	− 26 28 29.0	+ 4.3	Y.	
62	. .	. .	. .	+ 1 52.6	65 21 57.2	2 2.1	− 26 30 20.5	+ 4.3	Y.	
63	. .	. .	. .	+ 2 36.3	65 22 40.8	2 2.1	− 26 31 4.1	+ 4.3	Y.	
64	29.880	71.1	64.6	− 2 39.3	47 12 28.0	1 0.8	− 8 19 50.0	− 2.0	Y.	
65	. .	. .	. .	− 1 37.8	S. 39 58 26.2	47.2	− 1 5 34.6	− 4.6	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.	B.	.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						° ′ ″	″	″	″	″	″	″	r.	r.	r.
1872.															
Aug. 30	1	5 Aquilæ, (2d *) . . .	7.5	2	V, IX.	60 0 5.8	59.4	6.2	6.0	59.8	7.1	4.05	33.200	−0.291	32.907
	2	ζ^2 Sagittarii	. .	3	III–VII.	80 10 6.1	1.1	6.6	7.2	0.8	6.7	4.75	33.586	. .	33.299
	3	Dorpat 2434, (1st *) .	. .	2	III, VII.	59 45 5.9	59.2	5.5	6.0	59.7	6.8	3.85	28.266	. .	27.975
	4	Dorpat 2434, (2d *) .	. .	1	V.	" " "	"	"	"	"	"	"	27.671	. .	27.380
	5	23 Aquilæ	. .	3	III–VII.	58 0 5.9	0.0	6.1	7.6	1.8	8.3	4.95	27.555	. .	27.264
	6	O. Arg. S. 19551. .	. .	3	III–VII.	85 0 7.0	1.4	9.9	10.2	2.7	8.1	6.55	24.736	. .	24.450
	7	Anon. $19^h\ 29^m\ 16^s$.	9.0	2	III, VII.	39 20 9.9	4.6	10.8	11.8	5.7	11.6	9.07	26.585	. .	26.289
	8	Anon. $19^h\ 30^m\ 0^s$ . .	9.0	1	IX.	" " "	"	"	"	"	"	"	26.160	. .	25.847
	9	Anon. $19^h\ 30^m\ 3^s$ . .	8.0	1	IX.	" " "	"	"	"	"	"	"	25.488	. .	25.175
	10	B. A.C. 6753. . .	6.5	3	V–IX.	90 5 6.5	3.0	8.2	8.3	1.2	6.4	5.60	33.346	. .	33.066
	11	57 Aquilæ, (1st *) . .	5.5	2	I, IX.	67 25 8.1	3.8	11.2	11.1	4.5	10.1	8.13	28.576	. .	28.292
	12	57 Aquilæ, (2d *) . .	5.5	2	IV, VI.	" " "	"	"	"	"	"	"	27.448	. .	27.158
	13	B. A. C. 6872 . .	5.0	3	III–VII.	97 5 7.8	4.1	10.2	10.5	3.5	8.0	7.35	26.367	. .	26.084
	14	Lacaille 8318. . .	7.2	1	IX.	" " "	"	"	"	"	"	"	34.800	. .	34.542
	15	19 Vulpeculæ . . .	. .	2	I, IX.	32 30 6.9	1.6	7.8	8.1	2.2	8.0	5.77	35.310	. .	34.995
	16	Anon. $20^h\ 6^m\ 36^s$.	. .	3	IV–VI.	" " "	"	"	"	"	"	"	27.726	. .	27.434
	17	Nadir	. .	.	. .	200 0 7.9	5.2	10.1	12.4	3.8	10.3	8.29	30.411	. .	. .
Sept. 3	18	Lacaille 7469. . .	. .	3	III–VII.	90 10 6.3	1.7	5.8	6.0	59.8	5.1	4.12	33.016	−0.277	32.745
	19	O. Arg. S. 17447. .	8.0	3	III–VII.	84 0 7.5	2.5	7.0	7.9	2.2	7.8	5.82	28.988	. .	28.716
	20	ε Telescopii . . .	5.0	3	III–VII.	104 45 6.5	4.7	8.8	9.1	2.5	7.1	6.45	34.082	. .	33.815
	21	Taylor 8458 . . .	8.0	3	I–V.	85 20 7.5	2.1	8.8	10.5	2.9	8.4	6.70	30.367	. .	30.113
	22	Anon. $18^h\ 14^m\ 39^s$.	8.8	2	VII, IX.	" " "	"	"	"	"	"	"	26.774	. .	26.494
	23	Anon. $18^h\ 14^m\ 45^s$.	. .	1	IX.	" " "	"	"	"	"	"	"	25.321	. .	25.043
	24	1 Aquilæ	. .	3	III–VII.	67 15 7.9	4.7	9.7	10.9	4.1	10.2	7.92	35.385	. .	35.109
	25	5 Aquilæ, (1st *) . .	9.0	1	V.	60 0 8.4	2.8	9.2	9.8	4.2	10.9	7.55	33.549	. .	33.272
	26	5 Aquilæ, (2d *) . .	. .	2	III, VII.	" " "	"	"	"	"	"	"	33.318	. .	33.041
	27	ζ^2 Sagittarii	4.5	3	III–VII.	80 10 6.3	4.1	6.9	8.8	2.2	8.1	6.07	33.648	. .	33.375
	28	Dorpat 2434, (1st *) .	8.0	2	V, IX.	59 45 4.2	0.1	4.4	6.0	0.3	6.1	3.52	28.274	. .	27.985
	29	Dorpat 2434, (2d *) .	8.5	2	III, VII.	" " "	"	"	"	"	"	"	27.656	. .	27.379
	30	23 Aquilæ	. .	3	III–VII.	58 0 6.1	1.2	6.6	8.8	2.2	8.1	5.50	27.548	. .	27.271
	31	Anon. $19^h\ 21^m\ 47^s$.	8.3	3	III–VII.	84 55 3.6	0.8	6.3	8.0	0.7	6.0	4.23	29.757	. .	29.485
	32	Anon. $19^h\ 29^m\ 16^s$.	9.0	1	V.	39 20 8.9	6.8	9.8	12.7	5.6	11.9	9.28	26.583	. .	26.306
	33	Anon. $19^h\ 29^m\ 10^s$.	9.0	1	IX.	" " "	"	"	"	"	"	"	26.066	. .	25.747
	34	Anon. $19^h\ 30^m\ 3^s$.	8.0	2	VIII, IX.	" " "	"	"	"	"	"	"	25.474	. .	25.161
	35	57 Aquilæ, (1st *) . .	. .	3	IV–VI.	67 25 5.2	4.3	9.1	11.0	3.2	9.2	7.00	28.513	. .	28.236
	36	57 Aquilæ, (2d *) . .	. .	2	I, IX.	" " "	"	"	"	"	"	"	27.400	. .	27.130
	37	B. A.C. 6872. . .	4.5	3	IV–VI.	97 5 3.8	1.3	6.6	7.0	0.0	4.9	3.93	26.349	. .	26.074
	38	Lacaille 8318. . .	7.5	2	VII, IX.	" " "	"	"	"	"	"	"	34.781	. .	34.509
	39	64 Aquilæ	5.0	3	IV–VI.	59 55 9.5	6.3	11.0	13.9	4.9	12.8	9.73	29.847	. .	29.570
	40	γ Cygni	3.0	3	III–VII.	19 5 5.2	1.1	8.0	9.6	2.3	5.5	5.28	35.144	. .	34.859
	41	Nadir	. .	.	. .	200 0 5.4	3.8	7.2	10.5	0.8	7.7	5.90	30.319	. .	. .
7	42	ι Herculis	. .	2	VIII, IX.	12 50 9.2	2.7	7.6	1.9	9.7	12.6	7.28	32.542	−0.306	32.175
	43	73 Ophiuchi	6.0	3	V–IX.	54 55 7.9	58.2	3.8	59.1	5.8	9.9	4.12	31.412	. .	31.091
	44	Anon. $18^h\ 14^m\ 23^s$.	8.5	1	V.	85 20 5.4	55.9	3.1	0.4	2.9	10.2	2.98	30.034	. .	29.728
	45	Anon. $18^h\ 16^m\ 12^s$.	8.0	3	III–VII.	" " "	"	"	"	"	"	"	25.830	. .	25.529
	46	24 Sagittarii	6.0	3	III–VII.	83 0 5.6	58.1	3.0	0.5	3.1	9.2	3.25	31.463	. .	31.161
	47	B. A. C. 2210, S. P. .	6.0	3	IV–VI.	316 5 7.8	53.7	5.8	56.4	4.8	9.8	3.05	33.564	. .	33.271
	48	υ Draconis	. .	3	V, V½, VI.	347 50 11.1	2.8	12.5	4.0	10.1	16.2	9.45	37.532	. .	37.218
	49	δ Draconis	. .	3	IV–VI.	351 30 6.8	58.8	6.8	58.9	5.9	10.1	4.55	34.918	. .	34.605
	50	B. A. C. 2320, S. P. .	7.7	3	2–4.	327 55 5.5	54.1	3.1	55.0	2.8	6.9	1.23	31.121	. .	30.817
	51	α Sagittæ	4.5	3	III–VII.	41 10 10.0	1.2	5.8	2.8	7.2	16.1	7.18	30.862	. .	30.553
	52	ω Sagittaæ	. .	3	III–VII.	85 30 7.8	57.1	5.1	1.4	4.2	11.8	4.57	30.745	. .	30.444
	53	O. Arg. S. 20145. .	8.0	3	III–VII.	81 50 5.8	55.4	1.4	57.8	0.9	8.8	1.68	28.398	. .	28.096
	54	Lacaille 8340. . .	8.0	3	III–VII.	94 45 3.1	55.1	0.1	56.6	0.3	7.1	0.38	31.900	. .	31.601
	55	Anon. $20^h\ 6^m\ 39^s$.	7.3	2	I, IX.	32 30 8.7	2.2	5.6	1.4	7.4	14.1	6.57	27.779	. .	27.449
	56	19 Vulpeculæ . . .	6.0	1	V.	" " "	"	"	"	"	"	"	35.312	. .	35.006
	57	γ Cygni	. .	3	III–VII.	19 5 4.9	55.7	2.3	56.3	3.1	7.5	1.63	35.075	. .	34.761
	58	Anon. $20^h\ 24^m\ 10^s$.	. .	3	III–VII.	28 55 6.1	55.1	2.9	58.9	4.4	10.1	2.92	27.135	. .	26.823
	59	Nadir	. .	.	. .	199 59 64.1	52.9	60.2	54.9	58.8	68.8	59.95	30.158	. .	. .
14	60	73 Ophiuchi	5.5	3	III–VII.	54 55 8.0	5.9	9.8	12.8	5.2	9.9	8.60	31.613	−0.323	31.289
	61	d Serpentis	5.5	3	III–VII.	58 45 7.2	5.1	11.9	11.9	5.1	10.5	8.62	29.682	. .	29.359
	62	B. A.C. 6375. . .	. .	3	IV½–V½.	341 25 6.8	5.1	12.9	13.0	6.1	8.8	8.78	25.959	. .	25.632
	63	ν^1 Sagittarii	6.0	3	III–VII.	81 45 5.7	3.4	8.4	9.9	2.8	6.1	6.05	28.800	. .	28.481
	64	Anon. $18^h\ 55^m\ 57^s$.	9.3	1	V.	66 20 5.9	3.2	8.8	9.3	3.2	7.5	6.32	27.612	. .	27.289
	65	B. A. C. 2326, S. P. .	. .	3	IV½–V½.	321 35 4.8	1.2	8.7	9.9	1.8	5.7	5.35	32.506	−0.323	32.188

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	. .	. .	. .	− 1 31.0	S. 39 58 33.0	47.2	− 1 5 41.4	− 4.6	Y.	
2	. .	. .	. .	− 1 43.3	60 8 21.4	1 37.9	− 21 16 20.5	+ 0.8	Y.	
3	. .	. .	. .	+ 1 3.4	39 46 7.3	46.9	− 0 53 15.4	− 5.2	Y.	
4	29.906	71.0	64.1	+ 1 22.0	39 46 25.9	46.9	− 0 53 34.0	− 5.2	Y.	
5	. .	. .	. .	+ 1 25.7	38 1 30.6	44.1	+ 0 51 24.1	− 6.2	Y.	
6	. .	. .	. .	+ 2 53.8	65 3 0.3	2 0.7	− 26 11 22.2	+ 0.6	Y.	
7	. .	. .	. .	+ 1 56.2	19 22 5.3	19.9	+ 19 31 13.6	− 10.6	Y.	
8	. .	. .	. .	+ 2 10.1	19 22 19.1	19.9	+ 19 30 59.8	− 10.6	Y.	
9	. .	. .	. .	+ 2 31.1	19 22 40.2	19.9	+ 19 30 38.7	− 10.6	Y.	
10	29.912	70.8	63.3	− 1 36.0	70 3 29.6	2 34.4	− 31 12 25.2	+ 0.7	Y.	
11	. .	. .	. .	+ 0 53.5	47 26 1.6	1 1.5	− 8 33 24.3	− 3.9	Y.	
12	. .	. .	. .	+ 1 29.0	47 26 37.1	1 1.5	− 8 33 59.8	− 3.9	Y.	
13	. .	. .	. .	+ 2 2.6	77 7 10.0	4 2.1	− 38 17 33.3	+ 1.2	Y.	
14	29.916	70.7	62.7	− 2 22.2	77 2 45.1	4 0.7	− 38 13 17.0	+ 1.2	Y.	
15	. .	. .	. .	− 2 36.4	12 27 29.4	12.5	+ 26 25 56.9	− 12.0	Y.	
16	. .	. .	. .	+ 1 20.3	12 31 26.1	12.6	+ 26 22 0.1	− 12.0	Y.	
17	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
18	30.040	70.0	64.1	− 1 26.0	70 8 38.1	2 35.6	− 31 17 34.9	+ 7.3	Y.	
19	. .	. .	. .	+ 0 40.2	64 0 46.0	1 55.8	− 25 9 3.0	+ 4.9	Y.	
20	30.038	69.8	63.0	− 1 59.5	84 43 7.0	9 9.8	− 45 58 38.0	+ 11.3	Y.	
21	. .	. .	. .	− 0 3.5	65 20 3.2	2 3.1	− 26 28 27.5	+ 4.3	Y.	
22	. .	. .	. .	+ 1 49.8	65 21 56.5	2 3.4	− 26 30 21.1	+ 4.3	Y.	
23	. .	. .	. .	+ 2 35.2	65 22 41.9	2 3.4	− 26 31 6.5	+ 4.3	Y.	
24	30.040	68.8	61.2	− 2 40.0	47 12 27.9	1 1.5	− 8 19 50.6	− 2.2	Y.	
25	. .	. .	. .	− 1 42.5	39 58 25.1	47.8	− 1 5 34.1	− 4.9	Y.	
26	. .	. .	. .	− 1 35.2	39 58 32.3	47.8	− 1 5 41.3	− 4.9	Y.	
27	. .	. .	. .	− 1 45.7	60 8 20.4	1 39.1	− 21 16 20.7	+ 0.8	Y.	
28	. .	. .	. .	+ 1 3.1	39 46 6.6	47.5	− 0 53 15.3	− 5.5	Y.	
29	30.040	68.0	60.2	+ 1 22.1	39 46 25.6	47.5	− 0 53 34.3	− 5.5	Y.	
30	. .	. .	. .	+ 1 25.5	38 1 31.0	44.7	+ 0 51 23.1	− 6.5	Y.	
31	. .	. .	. .	+ 0 16.1	64 55 20.4	2 1.5	− 26 3 43.1	+ 0.5	Y.	
32	. .	. .	. .	+ 1 55.7	19 22 5.0	20.1	+ 19 31 13.7	− 11.2	Y.	
33	. .	. .	. .	+ 2 13.2	19 22 22.5	20.1	+ 19 30 56.2	− 11.2	Y.	
34	. .	. .	. .	+ 2 31.5	19 22 40.8	20.2	+ 19 30 37.8	− 11.2	Y.	
35	. .	. .	. .	+ 0 55.2	47 26 2.2	1 2.3	− 8 33 25.7	− 5.6	Y.	
36	. .	. .	. .	+ 1 29.9	47 26 36.9	1 2.4	− 8 34 0.5	− 5.6	Y.	
37	. .	. .	. .	+ 2 2.9	77 7 6.9	4 5.5	− 38 17 33.6	+ 1.6	Y.	
38	30.052	66.3	57.7	− 2 21.2	77 2 42.7	4 4.3	− 38 13 8.2	+ 1.5	Y.	
39	. .	. .	. .	+ 0 13.5	S. 39 55 23.2	48.1	− 1 2 32.5	− 7.9	Y.	
40	. .	. .	. .	− 2 32.1	N. 0 57 26.9	1.0	+ 39 51 6.7	− 14.0	Y.	
41	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
42	30.032	80.7	83.7	− 1 8.1	N. 7 11 0.8	6.9	+ 46 4 46.5	− 13.9	Y.	
43	. .	. .	. .	− 0 34.2	S. 34 54 30.0	38.1	+ 3 58 30.7	− 5.1	Y.	
44	. .	. .	. .	+ 0 8.5	65 20 11.5	1 58.4	− 26 28 31.1	+ 4.5	Y.	
45	30.028	80.3	82.8	+ 2 20.0	65 22 23.0	1 58.6	− 26 30 42.8	+ 4.4	Y.	
46	. .	. .	. .	− 0 36.3	S. 62 59 26.9	1 46.9	− 24 7 35.0	+ 3.1	Y.	
47	30.030	80.3	82.0	− 1 42.4	N. 63 56 39.4	1 51.4	+ 77 7 50.4	+ 12.1	Y.	
48	30.030	80.0	81.4	− 3 46.0	32 13 36.6	34.6	+ 71 7 50.0	− 16.0	Y.	
49	. .	. .	80.8	− 2 24.2	28 32 19.6	29.8	+ 67 26 28.2	− 16.0	Y.	
50	30.036	80.1	80.2	− 0 25.6	N. 52 5 24.4	1 10.4	+ 88 59 46.4	+ 14.0	Y.	
51	. .	. .	. .	− 0 17.3	S. 21 9 49.9	21.3	+ 17 43 27.6	− 11.4	Y.	
52	30.040	80.0	79.4	− 0 13.9	65 29 50.7	2 0.1	− 26 38 12.0	− 0.7	Y.	
53	. .	. .	. .	+ 0 59.6	61 51 1.3	1 42.5	− 22 59 5.0	− 2.1	Y.	
54	. .	. .	. .	− 0 50.1	74 44 10.3	3 18.7	− 35 53 50.2	+ 2.4	Y.	
55	. .	. .	. .	+ 1 19.9	12 31 26.4	12.2	+ 26 22 0.2	− 13.4	Y.	
56	. .	. .	. .	− 2 36.7	S. 12 27 29.8	12.2	+ 26 25 56.8	− 13.4	Y.	
57	. .	. .	. .	− 2 29.1	N. 0 57 27.5	0.9	+ 39 51 7.2	− 14.9	Y.	
58	30.038	79.8	77.7	+ 1 39.5	S. 8 56 42.4	8.7	− 29 56 47.7	− 2.3	Y.	
59	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
60	30.136	66.6	62.0	− 0 40.4	34 54 28.2	39.8	+ 3 58 30.8	− 5.3	Y.	
61	. .	. .	. .	+ 0 20.1	S. 38 45 28.7	46.0	+ 0 7 24.1	− 4.7	Y.	
62	30.140	66.4	60.4	+ 2 16.8	N. 38 32 34.4	45.6	+ 77 26 58.8	− 16.4	Y.	
63	. .	. .	. .	+ 0 47.6	S. 61 45 53.6	1 46.3	− 22 54 1.1	+ 1.9	Y.	
64	. .	. .	. .	+ 1 24.9	S. 46 21 31.2	1 0.1	− 7 28 52.5	− 3.6	Y.	
65	30.140	65.8	59.7	− 1 8.5	N. 58 26 3.2	1 33.1	+ 82 38 44.9	+ 5.7	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						° ′ ″	″	″	″	″	″	″	r.	r.	r.
1872.															
Sept. 14	1	Dorpat 2497, (1st *) .	8.5	3	IV–VI.	53 30 3.2	0.3	4.8	7.4	0.2	5.4	3.55	28.200	—0.323	27.876
	2	Dorpat 2497, (2d *) .	. .	2	I, IX.	" " "	"	"	"	"	"	"	27.226	. .	26.899
	3	h^1 Sagittarii	. .	3	III–VII.	83 50 5.0	3.8	8.0	10.8	2.4	6.4	6.07	27.590	. .	27.271
	4	B. A. C. 6753. . .	7.0	3	III–VII.	90 5 6.5	4.4	8.3	10.4	2.7	7.2	6.58	33.430	. .	33.113
	5	Anon. $19^h\ 49^m\ 6^s$. .	9.0	2	III, VII.	81 35 2.7	0.1	4.9	6.5	58.1	3.1	2.57	31.958	. .	31.641
	6	Lacaille 8326. . .	7.0	3	III–VII.	95 35 4.9	4.5	8.2	10.4	2.6	6.9	6.25	31.984	. .	31.668
	7	64 Aquilæ	. .	3	IV–VI.	59 55 5.9	2.8	8.8	11.1	2.7	9.9	6.87	29.788	. .	29.465
	8	Lacaille 8559. . .	7.5	3	III–VII.	102 15 6.2	5.8	8.5	11.7	3.3	7.8	7.22	29.573	. .	29.259
	9	7 Aquarii	5.0	3	III–VII.	69 5 5.8	6.2	11.2	14.1	3.6	9.9	8.47	33.313	. .	32.992
	10	Lacaille 8657. . .	8.0	3	III–VII.	102 25 1.7	1.2	5.6	7.5	58.9	2.1	2.83	35.614	. .	35.300
	11	Anon. $21^h\ 9^m\ 46^s$.	6.5	3	III–VII.	98 10 4.4	4.9	7.5	11.0	2.7	6.8	6.22	29.080	. .	28.765
	12	ι Capricorni . . .	5.0	1	V.	76 15 2.9	1.7	7.9	10.0	1.2	4.7	4.73	31.001	. .	30.678
	13	B. A. C. 7467. . .	7.0	3	III–VII.	84 35 6.1	6.5	11.9	13.8	4.8	9.4	8.75	27.513	. .	27.195
	14	ι^1 Capricorni . . .	5.5	3	III–VII.	68 35 4.4	3.7	8.8	12.0	3.3	7.5	6.62	35.315	. .	34.994
	15	Moon, S.	. .	3	III–VII.	78 10 5.3	4.8	10.1	12.5	4.5	7.7	7.48	28.457	. .	28.137
	16	Nadir	. .	.	. .	200 0 0.0	59.4	3.1	7.5	55.8	2.9	1.45	30.223	. .	. .
19	17	Weisse 1539 . . .	8.2	1	V.	45 15 5.2	0.4	5.8	3.0	3.7	6.0	4.02	32.002	—0.297	31.705
	18	Anon. $19^h\ 0^m\ 33^s$. .	9.2	1	IX.	" " "	"	"	"	"	"	"	25.324	. .	24.990
	19	Dorpat 2497, (1st *) .	8.2	3	III–VII.	53 30 6.8	3.7	7.2	6.7	6.3	10.1	6.80	28.238	. .	27.940
	20	Dorpat 2497, (2d *) .	8.6	2	I, IX.	" " "	"	"	"	"	"	"	27.320	. .	27.018
	21	Anon. $19^h\ 30^m\ 7^s$.	8.5	3	I–IX.	39 20 4.8	1.2	5.2	3.9	3.8	8.3	4.53	25.388	. .	25.080
	22	f Sagittarii	5.0	3	III–VII.	78 55 7.0	4.4	9.9	7.9	6.3	9.2	7.45	28.524	. .	28.231
	23	Anon. $19^h\ 49^m\ 5^s$.	9.0	3	III–VII.	81 35 5.8	2.7	7.0	6.5	3.5	7.1	5.43	31.963	. .	31.670
	24	Lacaille 8326. . .	7.0	3	III–VII.	95 35 6.0	2.7	7.8	6.9	5.4	8.1	6.15	31.825	. .	31.535
	25	b^3 Cygni	5.5	3	V–IX.	22 30 1.9	0.0	3.8	2.0	1.2	5.1	2.33	33.459	. .	33.134
	26	Weisse 498 . . .	8.3	1	V.	72 25 4.8	1.6	6.1	6.3	3.8	7.4	5.00	26.813	. .	26.516
	27	Weisse 499 . . .	8.5	2	VII, IX.	" " "	"	"	"	"	"	"	27.185	. .	26.877
	28	Lacaille 8559. . .	8.0	3	III–VII.	102 15 4.8	3.5	5.9	6.5	3.9	7.1	5.28	29.485	. .	29.197
	29	7 Aquarii	5.5	3	III–VII.	69 5 2.9	59.3	5.7	4.9	1.6	7.0	3.57	33.083	. .	32.788
	30	Lacaille 8657. . .	7.8	3	III–VII.	102 20 3.9	2.2	5.2	5.6	2.2	5.1	4.03	25.850	. .	25.562
	31	Anon. $21^h\ 9^m\ 46^s$.	6.5	3	III–VII.	98 10 5.2	2.8	5.3	5.5	4.1	7.1	5.00	28.927	. .	28.638
	32	16 Aquarii	5.5	3	III–VII.	64 0 6.4	3.2	8.2	8.5	4.6	8.9	6.63	33.086	. .	32.790
	33	B. A. C. 7467. . .	7.0	3	III–VII.	84 35 3.5	1.2	7.2	5.6	3.4	6.8	4.62	27.285	. .	26.993
	34	ι^1 Capricorni . . .	4.5	3	III–VII.	68 30 3.9	0.7	6.2	6.0	2.8	7.9	4.58	25.590	. .	25.295
	35	Anon. $21^h\ 46^m\ 14^s$.	9.5	2	V, IX.	65 55 3.8	59.7	5.5	4.8	3.2	5.9	3.82	24.000	. .	23.694
	36	Lacaille 9005. . .	7.0	3	III–VII.	86 30 1.3	59.0	4.8	5.1	0.4	4.7	2.55	27.715	. .	27.423
	37	O. Arg. S. 21964. .	9.0	3	III–VII.	80 50 3.2	0.0	5.2	4.4	0.8	5.3	3.15	26.651	. .	26.358
	38	B. A. C. 7772. . .	6.0	3	IV–VI.	61 5 1.8	57.8	3.2	2.7	59.7	4.2	1.57	27.337	. .	27.040
	39	33 Pegasi	6.0	2	III, VII.	38 40 5.8	3.4	9.1	7.7	6.1	9.1	6.87	28.749	. .	28.447
	40	Anon. $22^h\ 17^m\ 28^s$.	8.5	2	V, IX.	" " "	"	"	"	"	"	"	30.565	. .	30.247
	41	Nadir	. .	.	. .	200 0 4.8	3.5	7.3	8.2	4.3	9.7	6.30	30.353	. .	. .
21	42	51 Cephei, S. P. . . .	. .	3	1–5.	326 9 60.0	52.0	61.7	54.8	59.2	61.7	58.23	32.312	—0.289	32.026
	43	50 Draconis	. .	3	IV½–V½.	343 35 5.0	0.2	7.4	2.0	5.8	8.2	4.77	26.391	. .	26.099
	44	B. A. C. 6525. . .	6.5	3	V–IX.	87 40 9.2	2.1	7.3	5.8	6.2	10.9	6.92	27.946	. .	27.663
	45	δ Draconis	4.5	3	IV–VI.	351 30 4.9	59.6	7.7	2.4	5.7	7.1	4.57	34.908	. .	34.612
	46	B. A. C. 2320, S. P. .	7.5	3	2–4.	327 55 5.0	56.8	6.5	2.0	2.9	6.2	3.23	31.207	. .	30.920
	47	B. A. C. 2521, S. P. .	7.0	3	IV½–V½.	319 30 3.0	55.2	4.8	58.1	0.7	5.2	1.17	30.626	. .	30.341
	48	B. A. C. 6808. . .	6.0	3	IV–VI.	349 55 6.8	1.8	9.8	6.0	6.6	9.9	6.82	35.478	. .	35.181
	49	b^3 Cygni	5.0	2	I, IX.	22 30 4.0	59.6	4.7	1.4	3.9	7.0	3.43	33.542	. .	33.217
	50	B. A. C. 6969. . .	6.5	3	IV–VI.	" " "	"	"	"	"	"	"	27.488	. .	27.197
	51	Weisse 498 . . .	8.5	2	III, VII.	72 25 2.8	57.3	2.7	2.3	1.3	6.6	2.17	26.654	. .	26.368
	52	Weisse 499 . . .	9.2	1	V.	" " "	"	"	"	"	"	"	26.980	. .	26.691
	53	β Delphini	4.5	3	III–VII.	44 45 4.9	59.2	4.1	2.7	2.7	7.5	3.52	32.501	. .	32.210
	54	a Microscopii	. .	3	III–VII.	93 5 3.8	0.3	4.6	4.7	1.5	7.1	3.67	29.138	. .	28.855
	55	7 Aquarii	5.7	3	III–VII.	69 5 4.5	59.4	6.8	5.0	2.7	9.1	4.58	33.068	. .	32.781
	56	B. A. C. 7363. . .	6.0	3	IV½–V½.	348 0 7.8	2.6	12.3	7.1	7.7	12.1	8.27	32.874	. .	32.583
	57	1 Draconis, (H.,) S. P.	5.0	3	IV½–V½.	320 50 2.8	55.8	4.9	59.1	1.7	5.2	1.58	33.634	. .	33.350
	58	Anon. $21^h\ 25^m\ 18^s$.	7.5	3	V–IX.	83 35 4.9	0.6	5.3	5.2	3.7	8.0	4.62	31.448	. .	31.163
	59	9 Cephei	5.8	3	IV–VI.	357 25 3.9	59.0	6.9	4.1	3.7	oblit.	4.39	33.444	. .	33.150
	60	B. A. C. 3376, S. P. .	. .	3	IV½–V½.	312 25 3.8	55.8	6.2	0.8	2.8	5.0	2.40	30.610	. .	30.323
	61	Lacaille 9005. . .	8.0	3	III–VII.	86 30 3.8	58.2	3.8	4.2	1.2	6.4	2.93	27.696	. .	27.412
	62	B. A. C. 7772. . .	6.0	3	III–VII.	61 5 4.0	59.0	3.0	2.7	1.6	7.9	3.03	27.412	. .	27.123
	63	Nadir	. .	.	. .	200 0 3.5	57.9	3.6	2.1	0.7	7.8	2.60	30.225	. .	. .

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	. .	. .	. .	+ 1 6.5	S. 33 31 10.0	38.0	+ 5 21 50.8	— 8.1	Y.	
2	. .	. .	. .	+ 1 37.1	33 31 40.6	38.0	+ 5 21 20.2	— 8.1	Y.	
3	. .	. .	. .	+ 1 25.5	63 51 31.5	1 56.5	— 24 59 49.2	+ 0.5	Y.	
4	30.136	65.2	58.8	— 1 37.5	70 3 29.1	2 37.0	— 31 12 27.3	+ 1.9	Y.	
5	. .	. .	. .	— 0 51.4	61 34 11.2	1 45.8	— 22 42 18.2	— 1.4	Y.	
6	. .	. .	. .	— 0 52.2	75 34 14.0	3 39.7	— 36 44 14.9	+ 2.2	Y.	
7	30.134	64.7	58.3	+ 0 16.7	39 55 23.6	48.1	— 1 2 32.9	— 8.2	Y.	
8	30.144	64.2	57.7	+ 0 23.2	82 15 30.4	6 40.3	— 43 28 31.9	+ 0.9	Y.	
9	. .	. .	. .	— 1 33.7	49 3 34.8	1 6.4	— 10 11 2.4	— 8.1	Y.	
10	. .	. .	57.2	— 2 46.0	82 22 16.9	6 46.1	— 43 35 24.2	— 0.4	Y.	
11	. .	. .	. .	+ 0 38.7	78 10 44.9	4 28.5	— 39 21 34.6	— 2.4	Y.	
12	. .	. .	. .	— 0 21.2	56 14 43.5	1 26.1	— 17 22 30.8	— 7.8	Y.	
13	. .	. .	. .	+ 1 27.8	64 36 36.6	2 0.9	— 25 44 58.7	— 6.5	Y.	
14	. .	. .	. .	— 2 36.4	48 32 30.2	+ 1 5.2	— 9 39 56.6	— 10.6	Y.	
15	30.142	64.0	56.6	+ 0 58.3	58 11 5.8	—66 13.6	— 18 11 13.4	. .	Y.	
16	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
17	. .	. .	. .	— 0 53.4	25 14 10.6	+ 26.7	+ 13 39 1.5	— 10.2	Y.	
18	29.904	67.5	62.6	+ 2 36.9	25 17 40.9	26.8	+ 13 35 31.1	— 10.2	Y.	
19	. .	. .	. .	+ 1 4.5	33 31 11.3	37.5	+ 5 21 50.0	— 8.3	Y.	
20	. .	. .	. .	+ 1 33.4	33 31 40.2	37.5	+ 5 21 21.1	— 8.3	Y.	
21	. .	. .	. .	+ 2 34.1	19 22 38.6	19.9	+ 19 30 40.3	— 12.6	Y.	
22	29.920	67.4	62.3	+ 0 55.4	58 56 2.9	1 33.8	— 20 3 57.9	— 1.6	Y.	
23	. .	. .	. .	— 0 52.3	61 34 13.2	1 44.4	— 22 42 18.8	— 1.3	Y.	
24	. .	. .	. .	— 0 48.1	75 34 18.1	3 36.7	— 36 44 16.0	+ 2.6	Y.	
25	. .	. .	. .	— 1 38.1	2 28 24.2	2.5	+ 36 25 12.1	— 16.5	Y.	
26	. .	. .	. .	+ 1 49.1	52 26 54.1	1 13.7	— 13 34 29.0	— 5.8	Y.	
27	29.940	67.5	61.3	+ 1 37.8	52 26 42.8	1 13.9	— 13 34 17.9	— 5.8	Y.	
28	29.944	67.3	60.3	+ 0 25.1	82 15 30.4	6 35.4	— 43 28 27.0	+ 1.5	Y.	
29	. .	. .	. .	— 1 27.3	49 3 36.3	1 5.6	— 10 11 3.1	— 8.2	Y.	
30	29.940	67.3	60.0	+ 2 19.0	82 22 23.0	6 41.1	— 43 35 25.3	+ 0.3	Y.	
31	29.943	67.2	59.3	+ 0 42.7	78 10 47.7	4 25.6	— 39 21 34.5	— 1.9	Y.	
32	. .	. .	. .	— 1 27.4	43 58 39.3	55.0	— 5 5 55.5	— 10.5	Y.	
33	. .	. .	. .	+ 1 34.1	64 36 38.8	1 59.6	— 25 44 59.6	— 6.2	Y.	
34	. .	. .	. .	+ 2 27.3	48 32 31.9	1 4.5	— 9 39 57.6	— 10.6	Y.	
35	. .	. .	. .	+ 3 17.5	45 58 21.3	59.0	— 7 5 41.5	— 11.4	Y.	
36	29.946	66.8	59.4	+ 1 20.7	66 31 23.2	2 10.5	— 27 39 54.9	— 8.0	Y.	
37	. .	. .	. .	+ 1 54.0	60 51 57.2	1 42.0	— 22 0 0.4	— 9.7	Y.	
38	. .	. .	. .	+ 1 32.7	41 6 34.3	49.8	— 2 13 45.3	— 13.2	Y.	
39	. .	. .	. .	+ 0 48.6	18 40 55.5	19.3	+ 20 12 24.0	— 15.8	Y.	
40	29.946	66.5	59.3	— 0 7.7	S. 18 39 59.1	19.3	+ 20 13 20.4	— 15.8	Y.	
41	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
42	30.032	71.2	68.2	— 1 3.4	N. 53 51 5.2	1 16.9	+ 87 13 59.1	+ 15.2	Y.	
43	30.036	71.2	68.1	+ 2 2.2	N. 36 22 53.1	41.4	+ 75 17 13.3	— 17.3	Y.	
44	. .	. .	. .	+ 1 13.2	S. 67 41 20.1	2 16.3	— 28 49 57.6	+ 3.6	Y.	
45	30.036	71.1	67.5	— 2 24.4	N. 28 32 19.8	30.6	+ 67 26 29.2	— 18.4	Y.	
46	30.040	71.1	67.4	— 0 28.8	52 5 25.6	1 12.2	+ 88 59 43.4	+ 16.2	Y.	
47	30.044	71.0	67.2	— 0 10.7	60 30 9.5	1 39.2	+ 80 34 32.5	+ 14.9	Y.	
48	30.040	71.0	66.7	— 2 42.2	N. 30 7 35.4	32.7	+ 69 1 46.9	— 18.4	Y.	
49	. .	. .	. .	— 1 40.7	S. 2 28 22.7	2.4	+ 36 25 13.7	— 16.7	Y.	
50	30.040	70.8	66.2	+ 1 27.8	2 31 31.2	2.5	+ 36 22 5.1	— 16.7	Y.	
51	. .	. .	. .	+ 1 53.7	52 26 55.9	1 13.3	— 13 34 30.4	— 5.6	Y.	
52	. .	. .	. .	+ 1 43.6	52 26 45.8	1 13.3	— 13 34 20.3	— 5.7	Y.	
53	. .	. .	. .	— 1 9.2	24 43 54.3	26.0	+ 14 9 18.5	— 13.2	Y.	
54	30.044	70.6	66.5	+ 0 35.8	73 5 39.5	3 3.2	— 34 15 3.9	— 1.0	Y.	
55	. .	. .	. .	— 1 27.1	S. 49 3 37.5	1 5.0	— 10 11 3.7	— 8.1	Y	
56	30.044	70.5	66.1	— 1 20.9	N. 32 1 12.6	35.3	+ 70 55 26.7	— 17.8	Y.	
57	30.040	70.4	65.8	— 1 44.9	N. 59 11 43.3	1 34.5	+ 81 53 3.4	+ 14.3	Y.	
58	. .	. .	. .	— 0 36.4	S. 63 34 28.2	1 53.2	— 24 42 42.6	— 6.4	Y.	
59	30.042	70.4	65.5	— 1 38.6	N. 22 36 34.2	23.6	+ 61 30 36.6	— 17.7	Y.	Corr., +0″.91, applied to mean of A, B, C, D.
60	30.046	70.3	65.3	— 0 10.1	N. 67 35 7.7	2 16.2	+ 73 28 57.3	+ 12.0	Y.	
61	. .	. .	. .	+ 1 21.0	S. 66 31 24.0	2 9.4	— 27 39 54.6	— 7.5	Y.	
62	. .	. .	. .	+ 1 30.1	S. 41 6 33.1	49.3	— 2 13 43.6	— 13.2	Y.	
63	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						°	′	″	″	″	″	″	″	″	r.	r.	r.
1872.																	
Sept. 24	1	Groombridge 2719 .	6.0	3	IV½–V½.	345	0	4.2	54.9	3.9	56.7	1.8	7.1	1.43	34.541	−0.273	34.266
	2	Weisse 1539 . . .	8.5	3	III–VII.	45	15	6.1	58.2	4.8	0.4	3.5	9.2	3.70	31.998	−0.273	31.723
	3	B. A. C. 2377, S. P. .	5.5	3	IV½–V½.	320	4	62.9	51.9	62.5	54.8	59.1	64.5	59.28	32.324	−0.273	32.056
	4	π Draconis	5.0	3	IV½–V½.	353	25	5.7	58.1	7.2	2.0	5.3	9.8	4.68	29.133	. .	28.858
	5	h^1 Sagittarii	5.0	3	III–VII.	83	50	6.2	59.7	5.2	3.0	4.0	9.7	4.63	27.374	. .	27.105
	6	B. A. C. 2521, S. P. .	. .	3	IV½–V½.	319	30	4.2	53.8	3.8	56.0	1.4	6.3	0.92	30.674	. .	30.405
	7	ξ Aquilæ	4.5	3	III–VII.	50	45	5.8	57.9	5.0	0.8	4.7	10.9	4.18	30.454	. .	30.180
	8	Lacaille 8340. . .	8.0	3	III–VII.	94	45	6.0	59.1	5.0	2.9	4.1	9.8	4.48	32.139	. .	31.873
	9	κ Cephei	. .	3	IV–VI.	341	35	8.0	59.8	9.4	3.7	6.8	10.7	6.40	31.330	. .	31.045
	10	π Capricorni . . .	5.0	3	III–VII.	77	30	5.8	59.2	5.2	2.0	4.1	10.0	4.38	30.685	. .	30.415
	11	τ^1 Capricorni . . .	6.5	3	III–VII.	74	30	5.3	58.3	5.2	2.4	2.6	9.2	3.83	35.098	. .	34.828
	12	α Microscopii . . .	5.0	3	III–VII.	93	5	3.1	56.8	1.2	1.1	59.2	6.3	1.28	29.051	. .	28.784
	13	B. A. C. 3042, S. P. .	. .	3	IV½–V½.	320	15	4.4	54.8	5.0	57.0	0.5	6.0	1.28	29.959	. .	29.691
	14	B. A. C. 7363 . .	. .	3	IV½–V½.	348	0	6.2	59.1	8.7	2.0	4.4	10.7	5.18	32.822	. .	32.547
	15	16 Aquarii	5.5	3	III–VII.	64	0	1.9	54.7	1.2	58.6	58.7	5.9	0.17	32.855	. .	32.583
	16	B. A. C. 7467 . .	7.8	3	III–VII.	84	35	4.2	57.7	4.4	1.0	1.2	7.5	2.67	27.136	. .	26.868
	17	9 Cephei	4.5	3	IV–VI.	357	25	3.9	57.9	6.7	2.2	3.1	oblit.	4.08	33.469	. .	33.191
	18	B. A. C. 3376, S. P. .	6.0	3	IV½–V½.	312	25	3.3	53.8	5.2	58.2	0.8	5.1	1.07	30.633	. .	30.362
	19	Anon. $22^h\ 3^m\ 11^s$.	9.0	3	III–VII.	97	25	1.7	57.2	3.9	0.1	0.4	6.0	1.55	30.449	. .	30.184
	20	30 Pegasi	4.5	3	III–VII.	53	45	6.9	0.4	6.8	3.4	5.3	11.7	5.75	32.560	. .	32.286
	21	Anon. $22^h\ 19^m\ 13^s$.	9.0	3	III–VII.	87	50	6.3	59.6	5.0	4.0	2.7	9.1	4.45	28.153	. .	27.885
	22	Nadir	. .	.	. .	199	59	59.4	53.9	60.0	56.8	55.8	65.0	58.48	30.107	. .	. .
27	23	B. A. C. 6375 . .	. .	3	IV½–V½.	341	30	2.8	56.9	6.2	3.6	1.2	4.2	2.48	35.292	−0.234	35.055
	24	ξ Aquilæ	. .	3	III–VII.	50	45	5.2	1.2	7.3	6.9	3.2	8.7	5.42	30.490	. .	30.255
	25	Lacaille 8317. . .	. .	3	III–VII.	95	15	6.8	3.5	10.6	9.8	5.3	8.9	7.48	30.506	. .	30.279
	26	B. A. C. 2749, S. P. .	5.0	3	IV–VI.	311	45	5.7	59.8	9.2	6.4	2.2	6.2	4.92	32.603	. .	32.379
	27	B. A. C. 7047 . .	6.0	3	I–5.	334	35	8.2	3.7	12.3	10.8	7.6	10.1	8.78	26.813	. .	26.578
	28	β Delphini	. .	3	III–VII.	44	45	3.8	59.8	5.8	5.1	1.2	5.4	3.52	32.398	. .	32.162
	29	4 Cephei	. .	3	IV–VI.	352	45	4.9	0.6	8.6	6.8	2.1	5.4	4.73	35.642	. .	35.401
	30	B. A. C. 3042, S. P. .	. .	3	IV½–V½.	320	15	3.8	58.3	7.8	3.9	0.4	4.4	3.10	29.831	. .	29.602
	31	15 Aquarii	5.0	3	V–IX.	63	55	3.1	59.1	5.5	6.4	59.2	4.2	2.92	28.670	. .	28.432
	32	ι Capricorni . . .	4.5	3	III–VII.	76	15	4.9	3.2	10.3	9.9	4.0	7.9	6.70	30.889	. .	30.658
	33	Anon. $21^h\ 25^m\ 18^s$.	8.0	3	III–VII.	83	35	3.7	1.1	7.2	8.2	1.7	5.9	4.63	31.437	. .	31.207
	34	9 Cephei	. .	3	IV½–V½.	357	25	4.8	2.9	11.2	9.8	3.2	oblit.	7.18	33.481	. .	33.246
	35	B. A. C. 7584 . .	6.5	1	V.	33	55	3.4	2.1	8.3	8.9	1.7	7.1	5.25	33.445	. .	33.211
	36	B. A. C. 7586 . .	5.8	3	V–IX.	"	"	"	"	"	"	"	"	"	30.786	. .	30.536
	37	Anon. $21^h\ 56^m\ 3^s$.	8.8	3	III–VII.	85	10	4.7	2.8	9.3	10.4	3.3	7.6	6.35	35.604	. .	34.875
	38	τ Piscis Australis . .	4.0	3	III–VII.	87	15	6.0	5.2	9.8	11.7	3.7	8.2	7.43	30.000	. .	29.771
	39	Groom. 1633, S. P. .	5.0	3	I–5.	322	5	5.9	1.8	11.2	9.4	3.2	6.2	6.28	25.829	. .	25.596
	40	Nadir	. .	.	. .	200	0	2.4	0.8	6.1	7.9	59.1	6.1	3.73	30.206	. .	. .
Oct. 1	41	B. A. C. 6702 . .	6.0	3	IV½–V½.	342	35	5.4	1.8	10.0	7.4	5.3	7.0	6.15	28.957	−0.257	28.702
	42	B. A. C. 2521, S. P. .	7.0	3	I–5.	319	30	8.4	3.9	11.8	8.8	6.6	9.0	8.08	30.749	. .	30.498
	43	Anon $19^h\ 43^m\ 31^s$.	8.5	1	V.	349	50	7.0	3.6	11.4	9.2	5.9	7.9	7.50	27.440	. .	27.188
	44	B. A. C. 6808 . .	5.5	3	IV½–V½.	"	"	"	"	"	"	"	"	"	25.840	. .	25.586
	45	Lacaille 8317 . .	7.0	3	III–VII.	95	15	3.8	1.9	7.9	8.0	3.0	5.1	4.95	30.417	. .	30.172
	46	B. A. C. 2749, S. P. .	7.0	3	IV½–V½.	311	45	3.9	58.2	6.5	4.0	0.3	3.5	2.73	32.588	. .	32.338
	47	κ Cephei	5.0	3	IV½–V½.	341	35	5.9	1.4	11.2	8.9	4.4	6.2	6.33	31.219	. .	30.964
	48	Groom. 1431, S. P. .	7.0	3	I–5.	321	35	2.7	57.8	6.1	5.2	0.2	3.2	2.53	28.271	. .	28.020
	49	4 Cephei	4.5	3	IV–VI.	352	45	5.2	4.4	10.3	9.1	3.8	6.4	6.53	35.712	. .	35.453
	50	B. A. C. 3042, S. P. .	. .	3	I–5.	320	15	4.0	59.4	7.8	3.9	0.2	3.8	3.18	29.886	. .	29.635
	51	B. A. C. 7363 . .	5.5	3	IV–VI.	348	0	1.4	59.4	7.7	5.0	59.7	4.2	2.90	32.685	. .	32.425
	52	34 Vulpeculæ . . .	5.5	3	III–VII.	35	35	6.2	2.5	7.6	9.2	2.8	6.4	5.78	32.336	. .	32.080
	53	Weisse 668 . . .	8.5	3	III–VII.	57	30	oblit.	5.3	8.9	11.0	4.8	10.1	7.70	35.885	. .	35.633
	54	B. A. C. 3376, S. P. .	5.0	3	IV–VI.	312	25	2.7	58.3	6.4	5.8	59.3	2.4	2.48	30.509	. .	30.267
	55	Anon. $21^h\ 56^m\ 6^s$.	9.0	3	V–IX.	85	10	2.2	59.8	6.2	7.9	0.2	3.8	3.35	35.137	. .	34.892
	56	O. Arg. S. 21964 .	9.0	3	III–VII.	80	50	4.8	3.4	8.2	10.5	1.8	6.8	5.92	26.711	. .	26.463
	57	π Aquarii	4.5	3	III–VII.	58	10	3.0	1.1	5.8	10.2	2.3	7.6	5.00	32.506	. .	32.254
	58	κ Aquarii	5.0	3	III–VII.	63	45	3.4	1.1	5.0	8.0	59.4	4.7	3.60	28.995	. .	28.744
	59	ξ Pegasi	4.0	3	III–VII.	47	20	4.0	1.4	6.0	7.9	1.6	5.9	4.47	26.852	. .	26.598
	60	81 Aquarii	6.0	3	III–VII.	66	40	5.0	2.7	8.0	10.2	1.7	6.8	5.73	35.687	. .	35.436
	61	c^3 Aquarii	4.5	3	III–VII.	82	0	4.8	2.2	7.2	8.9	0.7	5.2	4.83	29.108	. .	28.860
	62	Nadir	. .	.	. .	200	0	0.6	0.2	4.6	7.7	57.4	3.9	2.40	30.182	−0.257	. .

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	30.204	78.0	76.3	− 2 13.6	N. 35 2 12.2	39.0	+ 73 56 30.0	− 17.5	Y.	
2	. .	. .	. .	− 0 53.9	S. 25 14 9.8	26.2	+ 13 39 2.8	− 10.2	Y.	
3	30.200	78.0	75.4	− 1 4.4	N. 59 56 5.1	1 36.0	+ 81 8 40.1	+ 15.0	Y.	
4	. .	. .	75.1	+ 0 35.7	N. 26 34 19.6	27.9	+ 65 28 26.3	− 18.4	Y.	
5	. .	. .	. .	+ 1 30.7	S. 63 51 35.3	1 53.2	− 24 59 49.7	+ 1.0	Y.	
6	30.202	77.6	74.2	− 0 12.7	N. 60 30 11.9	1 38.4	+ 80 34 31.0	+ 15.3	Y.	
7	. .	. .	. .	− 0 5.6	S. 30 44 58.6	33.3	+ 8 8 6.9	− 10.4	Y.	
8	30.204	77.3	73.7	− 0 58.7	S. 74 44 5.8	3 21.6	− 35 53 48.6	+ 2.8	Y.	
9	30.206	77.1	73.2	− 0 32.7	N. 38 25 26.3	44.4	+ 77 19 49.5	− 18.4	Y.	
10	. .	. .	. .	− 0 13.0	S. 57 29 51.4	1 27.7	− 18 37 40.3	− 3.9	Y.	
11	. .	. .	. .	− 2 31.2	54 27 32.6	1 18.3	− 15 35 12.1	− 5.3	Y.	
12	30.204	76.7	72.4	+ 0 38.1	S. 73 5 39.3	3 2.1	− 34 15 2.6	− 0.5	Y.	
13	. .	. .	72.3	+ 0 9.7	N. 59 44 49.0	1 35.8	+ 81 19 56.4	+ 15.4	Y.	
14	30.208	76.5	71.8	− 1 19.7	N. 32 1 14.6	35.1	+ 70 55 28.5	− 18.5	Y.	
15	. .	. .	. .	− 1 20.9	S. 43 58 39.3	54.1	− 5 5 54.6	− 10.3	Y.	
16	. .	. .	. .	+ 1 38.1	S. 64 36 40.7	1 57.8	− 25 44 59.7	− 5.6	Y.	
17	30.212	76.0	71.0	− 1 39.9	N. 22 36 35.9	23.4	+ 61 30 38.1	− 18.4	Y.	Corr., +1″.40, applied to mean of A, B, C, D.
18	30.207	76.0	71.2	− 0 11.3	N. 67 35 10.3	2 15.3	+ 73 28 55.6	+ 12.8	Y.	
19	. .	. .	. .	− 0 5.8	S. 77 24 55.8	4 6.0	− 38 35 23.0	− 5.4	Y.	Faint.
20	. .	. .	. .	− 1 11.6	33 43 54.2	37.6	+ 5 9 7.0	− 14.5	Y.	
21	30.208	75.5	69.8	+ 1 6.2	S. 67 51 10.7	2 17.4	− 28 59 49.3	− 8.6	Y.	
22	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
23	29.930	70.8	64.2	− 2 38.3	N. 38 32 35.8	45.0	+ 77 26 59.6	− 17.1	Y.	
24	. .	. .	. .	− 0 8.0	S. 30 44 57.4	33.9	+ 8 8 7.5	− 10.5	Y.	
25	29.972	69.0	60.1	− 0 8.7	S. 75 14 58.7	3 32.9	− 36 24 52.8	+ 3.4	Y.	Faint.
26	29.977	68.8	59.8	− 1 14.5	N. 68 16 9.6	2 22.0	+ 72 47 49.6	+ 14.5	Y.	
27	29.980	68.5	59.3	+ 1 47.1	N. 25 23 4.1	27.1	+ 64 17 10.0	− 19.6	Y.	
28	. .	. .	. .	− 1 7.7	S. 24 43 55.8	26.3	+ 14 9 16.7	− 13.5	Y.	
29	29.994	68.0	58.7	− 2 49.1	N. 27 17 44.4	29.5	+ 66 11 52.7	− 19.6	Y.	
30	29.990	67.8	58.0	+ 0 12.5	N. 59 44 44.4	1 37.9	+ 81 19 58.9	+ 16.1	Y.	
31	. .	. .	. .	+ 0 49.1	S. 43 55 52.0	55.2	− 5 3 8.4	− 10.2	Y.	
32	30.000	67.2	57.7	− 0 20.6	56 14 46.1	1 25.6	− 17 22 32.9	− 7.1	Y.	
33	. .	. .	. .	− 0 37.8	S. 63 34 26.8	1 55.0	− 24 42 43.0	− 5.8	Y.	
34	30.006	67.0	56.7	− 1 41.7	N. 22 36 34.5	23.9	+ 61 30 37.2	− 19.2	Y.	
35	. .	. .	. .	− 1 40.6	S. 13 53 24.7	14.2	+ 24 59 59.9	− 17.0	Y.	
36	. .	. .	. .	− 0 16.8	13 54 48.5	14.2	+ 24 58 36.1	− 17.0	Y.	
37	. .	. .	. .	− 2 32.7	65 7 33.7	2 3.2	− 26 15 58.1	− 7.3	Y.	
38	30.010	66.3	57.0	+ 0 7.2	S. 67 15 14.6	2 16.1	− 28 23 51.9	− 7.5	Y.	
39	30.008	66.2	57.2	+ 2 17.9	N. 57 52 35.8	1 31.2	+ 83 12 15.0	+ 14.6	Y.	
40	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
41	29.976	63.0	56.1	+ 0 40.7	37 24 13.2	43.9	+ 76 18 35.9	− 19.0	Y.	
42	29.980	63.0	55.8	− 0 15.6	60 30 7.5	1 41.3	+ 80 34 32.4	+ 16.3	Y.	
43	. .	. .	. .	+ 1 28.1	30 8 24.4	33.4	+ 69 2 36.3	− 19.7	Y.	
44	29.986	63.0	55.7	+ 2 18.2	N. 30 7 34.3	33.4	+ 69 1 46.5	− 19.8	Y.	
45	. .	. .	. .	− 0 5.4	S. 75 14 59.6	3 35.0	− 36 24 55.8	+ 3.6	Y.	
46	29.993	62.8	55.5	− 1 13.2	N. 68 16 10.5	2 23.4	+ 72 47 47.3	+ 15.3	Y.	
47	29.995	62.8	55.5	− 0 30.2	38 25 23.9	45.7	+ 77 19 48.4	− 19.8	Y.	
48	30.004	62.8	55.5	+ 1 2.0	58 23 55.5	1 33.4	+ 82 40 52.3	+ 17.4	Y.	
49	30.006	62.6	55.6	− 2 50.7	27 17 44.2	29.7	+ 66 11 52.7	− 20.5	Y.	
50	30.010	62.6	55.7	+ 0 11.4	59 44 45.4	1 38.4	+ 81 19 57.4	+ 17.2	Y.	
51	30.016	62.5	55.5	− 1 15.9	N. 32 1 13.0	36.0	+ 70 55 27.8	− 20.3	Y.	
52	. .	. .	. .	− 1 5.1	S. 15 34 0.7	16.1	+ 23 19 22.0	− 16.9	Y.	
53	. .	. .	. .	− 2 56.4	S. 37 27 11.3	44.2	+ 1 25 43.3	− 12.6	Y.	Corr., −1″.00, applied to mean of C, D, E, F.
54	30.028	61.7	54.3	− 0 8.4	N. 67 35 5.9	2 19.2	+ 73 28 56.1	+ 15.0	Y.	
55	. .	. .	. .	− 2 33.2	S. 65 7 30.2	2 4.2	− 26 15 55.6	− 7.0	Y.	
56	. .	. .	. .	+ 1 50.7	60 51 56.7	1 43.5	− 22 0 1.4	− 8.6	Y.	
57	30.028	61.2	53.0	− 1 10.6	38 8 54.4	45.5	+ 0 43 58.9	− 14.2	Y.	
58	. .	. .	. .	+ 0 39.3	43 45 42.9	55.5	− 4 52 59.6	− 13.6	Y.	
59	30.024	61.0	52.3	+ 1 46.5	27 21 51.0	30.0	+ 11 31 17.8	− 16.5	Y.	
60	. .	. .	. .	− 2 50.2	46 37 15.5	1 1.3	− 7 44 38.0	− 14.0	Y.	
61	30.014	60.4	51.8	+ 0 35.7	S. 62 0 40.5	1 48.8	− 23 8 50.5	− 11.7	Y.	
62	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
1872.						°	′	″	″	″	″	″	″	″	r.	r.	r
Oct. 8	1	B. A. C. 6752. . .	7.0	3	IV½–V½.	347	35	6.0	4.7	12.5	10.4	7.2	10.0	8.47	31.151	−0.227	30.922
	2	B. A. C. 2596, S. P. .	6.0	3	IV½–V½.	313	10	2.7	56.7	6.2	2.8	1.7	3.2	2.22	28.490	. .	28.266
	3	τ Ursæ Minoris . .	. .	3	V, 4, 5.	330	0	2.9	58.5	8.1	5.0	2.6	4.1	3.53	32.047	. .	31.816
	4	B. A. C. 2749, S. P. .	. .	3	IV½–V½.	311	45	3.1	57.2	7.0	3.5	1.8	3.8	2.73	32.570	. .	32.345
	5	κ Cephei	4.5	3	IV½–V½.	341	35	4.1	1.8	10.2	7.3	4.4	5.1	5.48	31.228	. .	30.998
	6	Groom. 1431, S. P. .	7.0	3	IV½–V½.	321	35	1.9	56.8	6.7	3.7	0.8	2.9	2.13	28.256	. .	28.035
	7	λ Capricorni . . .	7.0	3	III–VII.	74	30	2.3	0.8	7.4	8.0	2.2	4.2	4.15	35.100	. .	34.876
	8	α Microscopii . . .	. .	3	V–IX.	93	5	3.8	3.1	6.9	9.4	1.7	4.4	4.88	29.253	. .	29.034
	9	76 Draconis	6.0	3	1–5.	336	50	5.8	2.2	11.6	7.1	3.8	6.3	6.13	28.758	. .	28.530
	10	τ Ursæ Majoris, S. P. .	5.3	3	IV–VI.	303	0	1.9	57.1	5.7	3.4	59.2	2.1	1.57	31.459	. .	31.238
	11	15 Aquarii	5.8	3	III–VII.	63	55	0.8	57.4	2.2	5.2	57.2	1.3	0.68	28.625	. .	28.399
	12	34 Vulpeculæ . . .	4.5	3	III–VII.	35	35	0.7	57.5	2.4	4.2	58.5	1.9	0.87	32.220	. .	31.989
	13	B. A. C. 7497. . .	6.0	3	III–VII.	57	35	oblit.	57.1	2.2	2.8	59.2	3.0	0.64	26.435	. .	26.208
	14	28 Ursæ Minoris, S. P. .	6.8	3	IV–VI.	303	9	60.0	55.9	63.8	61.8	57.2	60.0	59.78	26.574	. .	26.353
	15	79 Draconis	6.0	3	IV½–V½.	345	50	4.4	1.6	10.0	6.9	3.8	5.4	5.35	34.038	. .	33.807
	16	Anon. $22^h\ 3^m\ 50^s$.	7.7	3	III–VII.	97	30	4.1	4.9	9.2	10.7	4.8	6.0	6.62	30.732	. .	30.513
	17	30 Pegasi	. .	3	III–VII.	53	45	3.6	2.5	7.5	8.7	3.2	6.9	5.40	32.538	. .	32.310
	18	Anon. $22^h\ 19^m\ 14^s$.	9.0	3	III–VII.	87	50	3.7	2.7	6.9	10.0	2.2	5.8	5.22	28.201	. .	27.979
	19	Anon. $22^h\ 26^m\ 50^s$.	8.3	3	V–IX.	96	10	1.4	1.8	7.7	7.3	2.0	5.2	4.23	31.380	. .	31.163
	20	ξ Pegasi	4.5	3	III–VII.	47	20	1.1	57.3	5.1	4.5	59.6	3.4	1.83	26.806	. .	26.577
	21	Lacaille 9286. . .	7.8	3	V–XI.	98	50	2.8	3.7	7.2	8.0	2.8	4.0	4.75	35.079	. .	34.864
	22	81 Aquarii	. .	3	III–VII.	66	35	2.9	0.9	7.8	8.4	1.4	6.2	4.60	26.104	. .	25.878
	23	c^3 Aquarii	. .	3	III–VII.	82	0	2.2	0.8	6.9	7.2	2.1	4.1	3.88	29.089	. .	28.866
	24	Nadir	. .	.	. .	200	0	0.2	0.2	4.8	7.2	58.2	4.1	2.45	30.159	. .	. .
10	25	O. Arg. S. 20092. .	7.0	3	IV–VI.	81	5	3.0	0.4	4.4	3.5	1.5	6.1	3.15	28.294	−0.277	28.018
	26	σ Aquarii	5.5	3	III–VII.	70	15	3.1	58.3	3.9	3.0	1.4	6.0	2.62	35.705	. .	35.430
	27	κ Aquarii	5.5	3	III–VII.	63	45	6.7	0.9	6.1	6.4	4.7	7.9	5.45	29.070	. .	28.794
	28	λ Piscis Australis . .	5.0	3	V–IX.	92	25	4.5	1.6	6.8	6.7	2.9	6.4	4.82	32.844	. .	32.575
	29	82 Aquarii	7.0	3	III–VII.	66	10	2.9	57.9	4.8	2.5	1.2	5.7	2.50	34.121	. .	33.845
	30	64 Pegasi	5.0	3	III–VII.	27	45	5.2	3.8	8.2	7.9	6.1	9.8	6.83	27.711	. .	27.428
	31	11 Piscium	6.0	3	III–VII.	61	25	3.9	1.9	6.1	5.0	4.2	8.0	4.85	35.752	. .	35.475
	32	B. A. C. 8273. . .	5.0	3	IV–VI.	351	50	7.4	6.4	12.8	11.4	8.7	10.8	9.58	34.244	. .	33.960
	33	B. A. C. 4050, S. P. .	6.0	2	V, V½.	320	30	2.0	56.8	4.9	1.2	59.3	3.9	1.35	32.102	. .	31.829
	34	4 Draconis, S. P. . .	5.0	3	IV½–V½.	317	15	2.8	57.8	5.8	4.1	0.4	5.1	2.67	30.483	. .	30.209
	35	κ Cassiopeæ . . .	4.5	3	IV–VI.	356	40	6.4	5.3	11.1	11.8	6.2	7.8	8.10	30.006	. .	29.723
	36	B. A. C. 175 . . .	. .	3	IV–VI.	353	25	2.4	1.2	7.2	7.1	2.7	4.8	4.23	26.300	. .	26.017
	37	32 Camelop., S. P., (1st *)	. .	2	IV, VI.	323	0	2.6	59.7	6.2	5.9	1.2	4.1	3.28	26.962	. .	26.728
	38	32 Camelop., S. P, (2d *)	. .	1	V.	"	"	"	"	"	"	"	"	"	27.565	. .	27.288
	39	O. Arg. S. 635 . .	6.5	3	III–VII.	83	35	5.1	5.2	9.8	11.7	4.1	7.8	7.28	35.817	. .	35.544
	40	Anon. $1^h\ 9^m\ 17^s$. .	8.3	1	IX.	45	50	0.7	58.4	3.8	4.6	58.8	1.9	1.37	31.649	. .	31.350
	41	Nadir	. .	.	. .	200	0	2.2	3.2	6.8	8.2	1.8	6.1	4.72	30.282	. .	. .
15	42	ε Draconis	4.5	3	IV–VI.	349	0	5.2	4.1	10.1	9.8	6.5	7.8	7.25	35.496	−0.230	35.258
	43	B. A. C. 2677, S. P. .	6.0	3	1–5.	321	45	4.0	0.8	8.7	7.4	5.3	5.2	5.23	32.055	. .	31.826
	44	π Capricorni . . .	4.5	3	III–VII.	77	30	2.5	1.9	6.2	7.0	4.8	6.3	4.78	30.725	. .	30.498
	45	41 Cygni	5.0	3	III–VII.	28	55	1.5	59.0	4.7	5.9	2.7	3.9	2.95	27.201	. .	26.966
	46	B. A. C. 7124. . .	7.3	2	V, VI.	346	50	5.2	3.8	11.6	8.9	7.4	8.2	7.52	34.242	. .	34.005
	47	4 Cephei	5.0	3	IV–VI.	352	40	2.8	0.5	6.9	5.2	2.5	3.2	3.52	26.098	. .	25.861
	48	B. A. C. 3042, S. P. .	6.5	3	1–5.	320	15	4.6	0.8	8.1	6.0	3.8	6.1	4.90	30.009	. .	29.780
	49	σ^2 Ursæ Majoris, S. P. .	6.0	3	IV½–V½.	306	35	2.2	58.8	3.9	4.0	1.2	3.3	2.23	29.014	. .	28.786
	50	B. A. C. 7363. . .	7.0	3	IV–VI.	348	0	2.7	1.8	9.1	7.2	3.8	6.4	5.17	32.835	. .	32.597
	51	15 Aquarii	6.0	3	III–VII.	63	55	2.2	59.8	3.9	7.4	1.2	3.2	2.95	28.686	. .	28.457
	52	h Ursæ Majoris, S. P. .	4.5	3	IV½–V½.	302	35	2.4	59.6	5.8	4.9	1.2	2.1	2.67	30.706	. .	30.477
	53	B. A. C. 7497. . .	7.0	3	III–VII.	57	40	oblit.	1.2	4.2	7.2	2.9	5.9	3.90	36.115	. .	35.885
	54	B. A. C. 7584. . .	6.5	3	IV–VI.	33	55	5.7	5.9	9.4	12.0	7.1	8.8	8.15	33.559	. .	33.328
	55	B. A. C. 7586. . .	6.0	2	VII, IX.	"	"	"	"	"	"	"	"	"	30.928	. .	30.687
	56	Anon. $21^h\ 47^m\ 30^s$.	9.5	3	III–VII.	70	50	0.8	0.2	2.8	5.3	1.2	4.1	2.40	30.727	. .	30.499
	57	Anon. $21^h\ 56^m\ 6^s$.	9.2	3	IV–VI.	85	10	2.6	1.8	5.7	8.8	2.5	5.7	4.52	35.035	. .	34.806
	58	Anon. $22^h\ 3^m\ 50^s$.	8.0	3	III–VII.	97	30	2.8	3.2	5.8	8.0	2.9	4.1	4.47	30.644	. .	30.422
	59	O. Arg. S. 22092. .	6.0	3	III–VII.	81	5	4.4	4.4	7.7	10.9	4.7	7.0	6.52	28.362	. .	28.136
	60	σ Aquarii	5.0	3	III–VII.	70	15	3.7	4.7	6.9	10.9	5.1	7.1	6.40	35.763	. .	35.535
	61	Anon. $22^h\ 27^m\ 21^s$.	8.8	3	III–VII.	86	55	1.6	1.2	4.8	8.0	2.7	4.4	3.78	31.576	. .	31.351
	62	30 Cephei	5.5	3	IV–VI.	356	0	1.1	1.2	6.1	6.7	1.8	3.5	3.40	33.162	. .	32.926
	63	Lacaille 9286. . .	7.8	3	III–VII.	98	50	59.7	59.4	1.3	4.2	58.8	59.8	0.53	34.910	. .	34.688
	64	82 Aquarii	5.8	3	III–VII.	66	10	3.8	2.2	7.2	8.8	4.1	7.0	5.52	34.141	. .	33.912
	65	O. Arg. S. 22691. .	9.0	3	III–VII.	76	55	6.0	5.1	10.8	12.4	7.2	8.4	8.32	27.915	−0.230	27.688

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	30.082	64.2	56.3	− 0 28.9	N. 32 25 20.4	36.6	+ 71 19 35.8	− 20.2	Y.	
2	30.086	64.1	55.8	+ 0 54.3	66 49 3.5	2 14.0	+ 74 15 3.7	+ 15.8	Y.	
3	30.086	64.0	55.5	− 0 56.9	50 0 53.4	1 8.8	+ 88 55 41.0	− 19.0	Y.	
4	30.084	63.8	55.3	− 1 13.4	68 16 10.7	2 23.9	+ 72 47 46.6	+ 16.1	Y.	
5	30.086	63.7	55.2	− 0 31.2	38 25 25.8	45.8	+ 77 19 50.4	− 20.7	Y.	
6	30.090	63.5	54.8	+ 1 1.5	N. 58 23 56.3	1 33.8	+ 82 40 51.4	+ 18.4	Y.	
7	. .	. .	. .	− 2 32.7	S. 54 27 31.5	1 20.9	− 15 35 13.6	− 4.7	Y.	
8	30.086	63.2	53.8	+ 0 30.2	S. 73 5 35.1	3 8.3	− 35 15 4.6	+ 1.2	Y.	
9	30.088	63.0	53.7	+ 0 46.0	N. 3 9 7.8	54.3	+ 82 3 40.9	− 20.8	Y.	
10	30.092	62.5	53.5	− 0 38.7	N. 77 0 37.2	4 5.1	+ 64 1 38.9	+ 14.9	Y.	
11	. .	. .	. .	+ 0 50.1	S. 43 55 50.8	55.9	− 5 3 7.9	− 10.0	Y.	
12	. .	. .	. .	− 1 2.3	15 33 58.6	16.2	+ 23 19 24.0	− 17.2	Y.	
13	. .	. .	. .	+ 1 58.8	S. 37 36 59.4	44.7	+ 1 15 54.7	− 12.3	Y.	Corr., − 1″.16, applied to mean of C, D, E, F.
14	30.090	62.0	52.4	+ 1 54.2	N. 76 48 6.0	4 2.8	+ 64 14 12.4	+ 14.7	Y.	
15	30.094	61.5	52.3	− 1 59.2	N. 34 11 53.9	39.5	+ 73 6 12.2	− 21.0	Y.	
16	. .	. .	. .	− 0 16.1	S. 77 29 50.6	4 16.3	− 38 40 28.1	− 3.0	Y.	
17	. .	. .	. .	− 1 12.3	33 43 53.1	38.8	+ 5 9 6.9	− 14.7	Y.	
18	30.090	61.2	52.3	+ 1 3.3	67 51 8.5	2 21.8	− 28 59 51.5	− 6.6	Y.	
19	. .	. .	. .	− 0 36.4	76 9 27.8	3 51.7	− 37 19 40.7	− 4.9	Y.	
20	. .	. .	. .	+ 1 47.2	27 21 49.0	30.1	+ 11 31 19.7	− 16.5	Y.	
21	30.098	60.8	51.4	− 2 32.3	78 47 32.4	4 45.8	− 39 58 39.4	− 5.6	Y,	
22	. .	. .	. .	+ 2 9.1	46 37 13.7	1 1.6	− 7 44 36.5	− 13.3	Y.	
23	30.096	60.6	51.2	+ 0 35.5	62 0 39.4	1 49.2	− 23 8 49.8	− 10.9	Y.	
24	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
25	29.974	65.4	56.3	+ 1 2.1	61 6 5.2	1 43.7	− 22 14 10.1	− 8.1	Y.	
26	. .	. .	. .	− 2 50.0	50 12 12.6	1 8.9	− 11 19 42.7	− 11.5	Y.	
27	. .	. .	. .	+ 0 37.8	43 45 43.2	55.1	− 4 52 59.5	− 13.3	Y.	
28	29.988	64.0	54.9	− 1 20.6	72 23 44.2	2 59.5	− 33 33 4.9	− 7.1	Y.	
29	. .	. .	. .	− 2 0.4	46 8 2.1	1 0.0	− 7 15 23.3	− 13.7	Y.	
30	. .	. .	. .	+ 1 20.5	7 46 27.4	7.9	+ 31 7 3.5	− 19.6	Y.	
31	. .	. .	. .	− 2 51.4	S. 41 22 13.4	50.9	− 2 29 25.5	− 15.5	Y.	
32	30.000	62.0	52.6	− 2 4.0	N. 28 11 54.4	31.1	+ 67 6 4.3	− 18.8	Y.	
33	30.010	61.2	52.3	− 0 57.3	59 30 55.9	1 38.2	+ 81 33 47.1	+ 14.2	Y.	
34	30.007	60.8	51.6	− 0 6.6	62 45 3.9	1 52.3	+ 78 19 25.0	+ 13.3	Y.	
35	30.014	60.0	51.1	+ 0 8.7	23 19 43.2	25.1	+ 62 13 47.1	− 16.8	Y.	
36	30.008	59.5	50.7	+ 2 4.7	26 32 51.0	29.1	+ 65 26 58.9	− 16.0	Y.	
37	. .	. .	. .	+ 1 42.5	56 58 14.2	1 29.3	+ 84 6 37.7	+ 11.4	Y.	
38	30.014	59.1	50.5	+ 1 24.9	N. 56 58 31.8	1 29.3	+ 84 6 20.1	+ 11.4	Y.	
39	. .	. .	. .	− 2 53.6	S. 63 32 13.7	1 56.5	− 24 40 31.4	− 16.2	Y.	
40	30.020	58.3	49.8	− 0 42.3	S. 25 49 19.1	28.2	+ 13 3 51.5	− 17.6	Y.	
41	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
42	29.918	57.5	47.1	− 2 44.7	N. 31 2 37.4	35.2	+ 69 56 51.4	− 20.9	Y.	
43	29.916	57.1	46.7	− 0 57.2	N. 58 15 52.0	1 34.3	+ 82 48 54.9	+ 18.9	Y.	
44	. .	. .	. .	− 0 15.6	S. 57 29 49.2	1 31.6	− 18 37 42.0	− 3.0	Y.	
45	. .	. .	. .	+ 1 35.0	S. 8 56 38.0	9.2	+ 29 56 51.6	− 17.9	Y.	
46	29.910	56.0	46.3	− 2 5.4	N. 33 11 57.9	38.3	+ 72 6 15.0	− 22.3	Y.	
47	29.910	55.7	46.1	+ 2 9.6	27 17 46.9	30.2	+ 66 11 55.9	− 22.6	Y.	
48	. .	. .	46.0	+ 0 6.9	59 44 48.2	1 40.1	+ 81 19 52.9	+ 20.0	Y.	
49	29.910	55.2	46.1	+ 0 38.0	73 24 19.8	3 13.9	+ 67 38 47.5	+ 17.3	Y.	
50	. .	. .	46.2	− 1 21.3	N. 32 1 16.1	36.6	+ 70 55 31.5	− 23.0	Y.	
51	. .	. .	. .	+ 0 48.3	S. 43 55 51.3	56.3	− 5 3 8.8	− 10.0	Y.	
52	29.908	54.4	46.4	− 0 14.9	N. 77 25 12.3	4 16.3	+ 63 36 52.6	+ 16.5	Y.	
53	. .	. .	. .	− 3 4.3	S. 37 36 59.6	45.1	+ 1 15 54.1	− 12.6	Y.	Corr., −1″.15, applied to mean of C, D, E, F.
54	. .	. .	. .	− 1 44.2	13 53 23.9	14.5	+ 25 0 0.4	− 19.0	Y.	
55	. .	. .	. .	− 0 21.5	13 54 46.6	14.5	+ 24 58 37.7	− 19.0	Y.	
56	29.908	54.0	46.0	− 0 15.6	50 49 46.8	1 11.7	− 11 57 19.7	− 9.5	Y.	Very faint.
57	. .	. .	. .	− 2 30.5	65 7 34.0	2 5.6	− 26 16 0.8	− 5.6	Y.	Faint.
58	29.908	54.0	45.8	− 0 13.2	77 29 51.2	4 18.2	− 38 40 30.6	− 2.3	Y.	
59	. .	. .	. .	+ 0 58.4	61 6 4.9	1 45.7	− 22 14 11.8	− 7.8	Y.	
60	. .	. .	. .	− 2 53.3	50 12 13.1	1 10.2	− 11 19 44.5	− 11.3	Y.	
61	. .	. .	. .	− 0 42.3	S. 66 54 21.5	2 16.4	− 28 2 59.1	− 6.9	Y.	
62	29.910	53.5	46.3	− 1 31.6	N. 24 1 28.2	26.1	+ 62 55 33.1	− 22.8	Y.	
63	. .	. .	. .	− 2 26.8	S. 78 47 33.7	4 47.0	− 39 58 41.9	− 4.8	Y.	
64	29.905	53.2	46.6	− 2 2.5	46 8 3.0	1 0.8	− 7 15 25.0	− 13.6	Y.	
65	. .	. .	. .	+ 1 12.4	S. 56 56 20.7	1 29.6	− 18 4 11.5	− 11.6	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						°	′	″	″	″	″	″	″	″	r.	r.	r.
1872.																	
Oct. 15	1	11 Piscium	6.0	3	III–VII.	61	20	4.7	4.8	8.0	12.1	5.5	8.9	7.33	26.145	−0.230	25.915
	2	75 Pegasi	5.8	3	III–VII.	41	10	5.6	5.8	9.2	13.1	6.7	10.6	8.50	27.753	. .	27.520
	3	Nadir	. .	.	.	200	0	3.3	3.7	6.4	9.8	2.6	6.7	5.42	30.257	. .	. .
	4	Moon, S.	. .	2	I, III.	56	25	1.9	2.2	5.2	9.2	3.5	6.1	4.68	27.674	. .	27.795
	5	Moon, N.	. .	2	VII, IX.	55	55	4.9	4.9	8.9	11.8	6.2	7.2	7.32	33.056	. .	32.476
21	6	B. A. C. 2930, S. P. .	7.3	3	IV½–V½.	319	25	4.2	59.3	6.5	59.9	4.8	6.0	3.45	29.926	−0.212	29.718
	7	Gr., 12-YearCat.,1879	6.0	3	IV½–V½.	338	50	3.0	58.6	6.4	1.1	2.7	4.0	2.63	30.585	. .	30.369
	8	σ^2 Ursæ Majoris, S. P.	6.0	3	IV½–V½.	306	35	5.2	59.8	6.4	2.6	4.8	6.2	4.17	29.145	. .	28.935
	9	υ Cygni	4.8	3	III–VII.	24	35	3.0	59.7	4.9	2.0	3.6	5.1	3.05	36.831	. .	36.612
	10	β Cephei	. .	3	IV–VI.	348	55	4.1	59.4	8.0	3.9	4.9	5.7	4.33	32.471	. .	32.251
	11	O. Arg. N. 22729 .	8.2	3	V–VII.	348	10	4.0	0.8	8.9	4.3	4.7	6.7	4.90	30.551	. .	30.320
	12	11 Cephei	5.0	3	IV–VI.	"	"	"	"	"	"	"	"	"	29.440	. .	29.220
	13	Anon. $21^h\ 46^m\ 14^s$.	9.0	3	III–VII.	66	0	1.1	56.6	1.5	59.9	2.1	4.2	0.90	33.385	. .	33.174
	14	B. A. C. 7678 . .	6.0	3	IV½–V½.	339	15	4.5	0.4	8.7	4.8	5.7	6.7	5.13	35.842	. .	35.626
	15	ρ Aquarii	5.0	3	III–VII.	67	20	4.9	1.2	6.9	5.9	5.1	8.2	5.37	30.048	. .	29.837
	16	33 Pegasi	. .	3	IV–VI.	38	40	4.2	1.8	6.8	5.9	6.5	9.6	5.80	28.781	. .	28.568
	17	Nadir	. .	.	.	200	0	0.6	56.8	0.9	0.9	59.8	4.2	0.53	30.083	. .	. .
29	18	B. A. C. 7363 . .	6.0	3	IV–VI.	348	0	3.3	3.8	9.8	9.2	4.5	5.9	6.08	32.910	−0.269	32.633
	19	υ Cygni	4.8	3	IV–VI.	24	30	4.2	4.2	6.8	9.2	2.8	4.2	5.23	27.390	. .	27.119
	20	α Ursæ Majoris, S. P.	5.0	3	IV½–V½.	309	20	2.1	1.6	6.9	6.2	2.7	3.9	3.90	31.204	. .	30.937
	21	B. A. C. 3284, S. P. .	6.5	3	IV–VI.	318	40	3.4	1.8	7.1	7.1	2.2	3.9	4.25	33.570	. .	33.316
	22	11 Cephei	5.0	2	VI½, VI.	348	10	4.0	4.8	10.8	10.8	4.2	4.9	6.38	29.534	. .	29.256
	23	79 Draconis	. .	3	IV½–V .	345	50	3.0	2.3	8.5	8.0	3.2	4.1	4.85	34.101	. .	33.830
	24	Anon. $22^h\ 3^m\ 51^s$.	8.0	3	III–VI .	97	30	0.7	2.8	6.1	8.8	2.2	2.0	3.77	30.887	. .	30.626
	25	Anon. $22^h\ 15^m\ 47^s$.	9.0	2	IV, V.	67	0	0.7	0.4	5.3	7.9	0.7	2.1	2.85	32.256	. .	31.988
	26	Anon. $22^h\ 16^m\ 7^s$.	8.7	2	VIII, IX.	"	"	"	"	"	"	"	"	"	33.276	. .	33.006
	27	Weisse 449, (2d *) .	9.0	2	V, IX.	69	30	0.6	1.5	5.2	8.6	0.9	2.9	3.28	33.854	. .	33.586
	28	38 Ursæ Majoris, S. P.	5.5	2	IV½, V½.	305	20	1.7	0.4	5.1	8.1	0.5	1.4	2.87	30.253	. .	29.986
	29	γ Piscis Australis . .	4.5	3	III–VII.	92	25	4.1	6.4	8.6	12.8	3.2	5.3	6.73	33.064	. .	32.801
	30	β Pegasi	3.0	3	III–VII.	31	30	4.0	4.7	9.2	12.8	3.8	6.3	6.80	31.001	. .	30.727
	31	O. Arg. S. 22691 .	9.2	3	V–IX.	76	55	1.3	1.8	6.4	10.4	2.4	3.2	4.25	28.098	. .	27.831
	32	64 Pegasi	5.5	3	III–VII.	27	45	4.1	7.7	9.5	15.2	5.2	8.9	8.43	27.788	. .	27.513
	33	11 Piscium	5.8	3	III–VII.	61	20	0.9	2.7	5.2	10.9	0.6	4.3	4.10	26.162	. .	25.893
	34	75 Pegasi	. .	3	III–VII.	41	10	4.2	5.2	8.4	14.1	3.8	9.4	7.52	27.832	. .	27.560
	35	B. A. C. 8273 . .	5.0	3	IV–VI.	351	50	3.5	7.9	10.9	15.7	4.5	6.1	8.10	34.309	. .	34.033
	36	B. A. C. 4036, S. P. .	6.0	3	IV–VI.	301	15	2.6	4.8	7.2	10.3	2.7	3.5	5.18	32.286	. .	32.022
	37	Nadir	. .	.	.	199	59	59.5	62.1	62.9	68.8	58.0	62.0	62.22	30.194	. .	. .
31	38	1 Draconis, (H.,) S. P.	. .	3	I–5.	320	50	3.1	2.1	8.9	7.9	5.2	4.7	5.32	33.870	−0.276	33.595
	39	B. A. C. 7504 . .	8.0	3	I–5.	332	25	2.1	1.2	8.1	7.0	4.2	3.4	4.33	32.072	. .	31.794
	40	B. A. C. 3275, S. P. .	6.0	3	I–5.	317	35	2.9	0.3	6.8	5.4	4.5	4.1	4.00	24.551	. .	24.276
	41	11 Cephei	5.3	3	IV–VI.	348	10	1.1	0.9	7.8	6.2	2.8	2.7	3.58	29.490	. .	29.206
	42	Anon. $21^h\ 46^m\ 37^s$.	6.5	3	III–VII.	95	29	59.3	58.3	63.8	64.4	59.8	60.1	60.95	30.928	. .	30.659
	43	B. A. C. 7678 . .	. .	3	IV½–V½.	339	9	58.8	55.9	63.9	62.8	58.3	58.0	59.62	26.187	. .	25.907
	44	λ Piscis Australis .	5.5	3	III–VII.	87	15	2.8	2.1	5.2	9.8	3.1	4.2	4.53	29.948	. .	29.677
	45	Anon. $22^h\ 15^m\ 29^s$.	9.2	2	III, V.	67	0	2.5	0.5	5.7	7.8	2.5	4.1	3.85	32.130	. .	31.854
	46	Anon. $22^h\ 15^m\ 44^s$.	8.8	1	IX.	"	"	"	"	"	"	"	"	"	33.351	. .	33.074
	47	B. A. C. 3652, S. P. .	6.0	3	IV–VI.	308	40	5.3	2.2	8.2	8.8	4.8	5.1	5.73	28.849	. .	28.581
	48	ι Cephei	. .	3	IV–VI.	353	20	1.6	1.8	5.9	7.9	3.0	3.7	3.98	26.495	. .	26.213
	49	Weisse XXII, 1088 .	8.8	2	IV, VI.	63	55	1.8	0.8	3.9	8.3	0.8	2.0	2.93	29.721	. .	29.445
	50	B. A. C. 3906, S. P. .	6.0	3	I–5.	320	45	0.0	59.8	6.2	4.9	0.8	0.8	2.08	30.718	. .	30.443
	51	γ Cephei	. .	3	IV½–V½.	342	0	0.5	0.3	6.9	6.6	2.2	0.9	2.90	32.419	. .	32.140
	52	B. A. C. 8273 . .	5.5	3	IV–VI.	351	50	2.0	4.4	8.8	9.9	4.5	3.1	5.45	34.269	. .	33.986
	53	B. A. C. 4050, S. P. .	7.0	3	I–5.	320	30	3.4	2.2	8.7	7.9	4.0	3.5	4.95	32.362	. .	32.087
	54	B. A. C. 4070, S. P. .	6.5	2	V, 5.	325	15	3.0	3.0	7.8	8.5	5.1	4.3	5.28	35.297	. .	35.022
	55	Nadir	. .	.	.	199	59	56.6	58.1	61.1	65.1	56.9	60.0	59.63	30.120	. .	. .
Nov. 4	56	h Ursæ Majoris, S. P.	. .	3	IV –V½.	302	30	1.6	0.6	5.1	3.6	3.6	2.1	2.77	30.801	−0.253	30.550
	57	B. A. C. 7509 . .	7.5	1	V.	343	5	2.0	1.2	5.5	3.9	5.2	3.2	3.50	33.330	. .	33.077
	58	Anon. $21^h\ 46^m\ 37^s$.	6.3	3	III–VII.	95	30	4.7	5.4	7.0	7.8	6.2	5.7	6.13	31.126	. .	30.880
	59	79 Draconis	6.5	3	IV½–V½.	345	50	1.7	0.8	5.5	3.2	4.1	3.4	3.12	34.146	. .	33.891
	60	32 Ursæ Majoris, S. P.	5.5	3	IV½–V½.	304	40	1.9	0.5	5.2	4.1	4.2	3.7	3.27	27.075	. .	26.824
	61	Anon. $22^h\ 15^m\ 36^s$.	9.2	3	III–VII.	67	0	0.9	59.8	4.1	4.4	2.7	3.9	2.63	32.204	. .	31.952
	62	Anon. $22^h\ 15^m\ 46^s$.	. .	1	IX.	"	"	"	"	"	"	"	"	"	33.298	. .	33.044
	63	Anon. $22^h\ 26^m\ 36^s$.	9.5	1	V.	87	0	0.8	59.3	3.1	5.8	1.9	3.1	2.33	34.204	. .	33.951
	64	B. A. C. 7941 . .	. .	3	IV½–V½.	338	10	2.0	2.7	7.1	6.7	3.5	3.2	4.20	29.046	. .	28.792
	65	β Pegasi	. .	3	III–VII.	331	30	0.1	0.6	2.2	5.1	1.8	2.5	2.05	30.873	−0.253	30.615

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	. .	. .	. .	+ 2 7.9	S. 41 22 15.2	51.4	— 2 29 27.8	— 15.5	Y.	
2	30.902	53.2	47.2	+ 1 17.7	21 11 26.2	+ 22.6	+ 17 41 50.0	— 18.9	Y.	
3	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
4	. .	. .	. .	+ 1 9.0	36 26 13.7	−49 59.8	+ 3 17 24.5	. .	Y.	
5	29.892	53.1	47.3	— 1 17.6	S. 35 53 49.8	−33 36.7				
							+ 80 29 51.2	+ 20.2	Y.	
6	30.176	61.2	55.8	+ 0 8.8	N. 60 34 47.7	+ 1 42.3	+ 80 4 38.4	— 23.2	Y.	
7	30.178	61.2	55.2	— 0 11.6	41 10 8.9	50.7	+ 67 38 46.5	+ 18.2	Y.	
8	30.180	61.1	54.8	+ 0 33.3	N. 73 24 22.5	3 12.2	+ 34 21 58.2	— 20.5	Y.	
9	. .	. .	. .	— 3 27.1	S. 4 31 36.0	4.6	+ 70 0 20.9	— 24.1	Y.	
10	30.180	60.5	53.8	— 1 10.5	N. 31 6 6.2	35.9				
							+ 70 44 20.0	— 24.2	Y.	
11	. .	. .	. .	— 0 10.0	31 50 5.1	36.1	+ 70 43 45.6	— 24.2	Y.	
12	. .	. .	54.0	+ 0 24.4	N. 31 49 30.7	36.1	— 7 5 42.8	— 10.5	Y.	Faint.
13	. .	. .	. .	— 1 39.4	S. 45 58 21.5	1 0.1	+ 79 42 20.1	— 23.9	Y.	
14	30.184	60.0	53.5	— 2 56.2	N. 40 47 51.1	50.2	— 8 27 34.8	— 11.3	Y.	
15	. .	. .	. .	+ 0 5.1	S. 47 20 10.5	1 3.1				
							+ 20 12 28.5	— 19.0	Y.	Cloudy.
16	. .	. .	. .	+ 0 44.8	S. 18 40 50.6	19.7	. . . .	. .	Y.	
17	. .	. .	. .	. .	. . . .	. .				
							+ 70 55 32.6	— 24.7	Y.	
18	30.472	51.5	44.5	— 1 22.4	N. 32 1 16.4	37.4	+ 34 21 58.7	— 20.9	Y.	
19	. .	. .	. .	+ 1 30.2	S. 4 31 35.4	4.7	+ 70 23 6.6	+ 20.9	Y.	
20	30.470	51.1	44.0	— 0 29.3	N. 70 40 25.4	2 49.2	+ 79 42 52.1	+ 22.9	Y.	
21	30.470	51.0	43.0	— 1 43.8	61 21 39.6	1 49.5	+ 70 43 46.4	— 25.6	Y.	
22	. .	. .	42.2	+ 0 23.3	31 49 30.3	37.3				
							+ 73 6 14.7	— 25.8	Y.	
23	30.466	50.0	42.2	— 1 59.9	N. 34 11 55.1	40.8	— 38 40 30.4	— 0.6	Y.	
24	. .	. .	42.2	— 0 19.6	S. 77 29 44.2	4 25.0	— 8 6 26.2	— 11.1	Y.	
25	. .	. .	. .	— 1 2.2	46 59 0.6	1 4.4	— 8 5 54.3	— 11.2	Y.	
26	. .	. .	. .	— 1 34.1	46 58 28.7	1 4.4	— 10 35 42.5	— 10.6	Y.	
27	30.458	49.0	41.8	— 1 52.3	S. 49 28 11.0	1 10.3				
							+ 66 22 48.2	+ 20.6	Y.	
28	30.460	48.8	41.4	+ 0 0.4	N. 74 39 56.7	3 36.3	— 33 33 7.9	— 4.5	Y.	
29	. .	. .	41.0	— 1 27.7	S. 72 23 39.0	3 7.7	+ 27 23 42.4	— 21.6	Y.	
30	. .	. .	. .	— 0 22.8	11 29 44.1	12.3	— 18 4 5.8	— 10.2	Y.	
31	. .	. .	. .	+ 1 7.9	56 56 12.2	1 32.4	+ 31 7 4.3	— 22.3	Y.	
32	. .	. .	. .	+ 1 17.9	7 46 26.3	8.2				
							— 2 29 27.0	— 15.1	Y.	
33	30.464	47.2	40.2	+ 2 8.6	41 22 12.7	53.1	+ 17 41 51.5	— 19.9	Y.	
34	. .	. .	. .	+ 1 16.4	S. 21 11 23.9	23.4	+ 67 6 9.4	— 24.6	Y.	
35	30.468	47.0	40.3	— 2 6.3	N. 28 11 58.2	32.4	+ 62 15 27.4	+ 18.3	Y.	
36	30.468	47.0	40.3	— 1 3.3	78 45 58.1	4 55.7	. . . .	. .	Y.	
37	. .	. .	. .	. .	. . . .	. .				
38	29.992	51.0	43.4	— 1 52.6	59 11 47.2	1 38.7	+ 81 52 55.3	+ 23.2	Y.	
39	29.996	51.0	43.4	— 1 56.2	47 36 51.9	1 4.6	+ 86 31 35.3	— 24.8	Y.	
40	. .	. .	. .	+ 2 59.2	62 21 56.8	1 52.3	+ 78 42 32.1	+ 22.9	Y.	
41	29.994	50.8	43.1	+ 0 24.9	N. 31 49 31.5	36.7	+ 70 43 47.0	— 25.9	Y.	
42	. .	. .	. .	— 0 20.6	S. 75 29 40.3	3 44.6	— 36 39 46.1	— 0.1	Y.	
43	30.000	50.2	43.0	+ 2 8.2	N. 40 47 52.2	50.9	+ 79 42 21.9	— 25.9	Y.	
44	. .	. .	. .	+ 0 10.1	S. 67 15 14.6	2 20.1	— 28 23 55.9	— 3.9	Y.	
45	. .	. .	. .	— 0 58.1	46 59 5.8	1 3.3	— 8 6 30.3	— 11.0	Y.	
46	. .	. .	. .	— 1 36.2	S. 46 58 27.6	1 3.3	— 8 5 52.1	— 11.0	Y.	
47	29.996	50.0	42.2	+ 0 44.4	N. 71 19 9.8	2 53.3	+ 69 44 18.1	+ 22.0	Y.	
48	29.994	49.5	41.6	+ 1 58.6	N. 26 37 57.4	29.7	+ 65 32 5.9	— 26.3	Y.	
49	. .	. .	. .	+ 0 17.4	S. 43 55 20.3	57.0	— 5 2 38.5	— 13.4	Y.	
50	29.994	48.8	41.0	— 0 13.9	N. 59 15 11.8	1 39.4	+ 81 49 30.0	+ 23.3	Y.	
51	29.990	48.5	40.6	— 1 7.0	38 1 4.1	46.4	+ 76 55 29.3	— 25.1	Y.	
52	29.986	48.2	40.4	— 2 4.8	28 11 59.4	31.8	+ 67 6 10.0	— 25.1	Y.	
53	29.990	48.2	40.2	— 1 5.3	59 31 0.4	1 40.6	+ 81 33 40.2	+ 22.2	Y.	
54	29.990	48.1	40.1	— 2 37.2	54 47 32.0	1 24.0	+ 86 17 25.2	+ 22.6	Y.	
55	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
56	30.276	52.2	46.4	— 0 17.2	77 25 14.5	4 19.6	+ 63 36 47.1	+ 20.1	Y.	
57	30.280	52.0	46.0	— 1 36.3	N. 36 56 32.8	44.6	+ 75 50 56.2	— 25.9	Y.	
58	. .	. .	. .	— 0 27.6	S. 75 29 38.6	3 45.7	— 36 39 45.5	+ 0.4	Y.	
59	30.284	51.2	44.6	— 2 1.9	N. 34 11 58.7	40.4	+ 73 6 17.9	— 26.5	Y.	
60	30.280	50.8	44.2	+ 1 39.4	N. 75 18 17.3	3 43.2	+ 65 44 20.7	+ 21.8	Y.	
61	. .	. .	. .	— 1 1.1	S. 46 59 1.5	1 3.8	— 8 6 26.5	— 10.7	Y.	
62	. .	. .	. .	— 1 35.3	46 58 27.3	1 3.8	— 8 5 52.3	— 10.7	Y.	
63	. .	. .	. .	— 2 3.7	S. 66 57 58.6	2 19.5	— 28 6 39.3	— 4.4	Y.	
64	30.286	49.8	42.2	+ 0 37.8	N. 41 49 18.0	53.5	+ 80 43 50.3	— 26.7	Y.	
65	. .	. .	. .	— 0 19.2	S. 11 29 42.8	12.2	+ 27 23 43.8	— 21.9	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						° ′ ″	″	″	″	″	″	″	r.	r.	r.
1872.															
Nov. 4	1	B. A. C. 8180. . .	. .	3	IV½–V½.	349 15 1.3	0.7	6.3	6.1	1.8	2.2	3.07	31.456	—0.253	31.201
	2	2 Draconis, S. P. . .	5.0	3	IV½–V½.	309 0 3.3	5.1	7.1	6.9	6.2	5.2	5.63	33.857	. .	33.606
	3	B. A. C. 8273. . .	. .	3	IV–VI.	351 50 3.9	6.6	8.9	10.8	6.3	5.4	6.98	34.378	. .	34.118
	4	B. A. C. 4036, S. P. .	6.5	3	IV–VI.	301 15 0.8	1.4	4.1	4.4	2.0	1.1	2.30	32.294	. .	32.047
	5	B. A. C. 4070, S. P. .	6.0	3	1–5.	325 15 1.3	0.4	3.8	4.8	2.8	2.7	2.63	35.269	. .	35.018
	6	B. A. C. 39 . . .	6.5	3	IV½–V½.	342 40 1.6	1.7	5.3	5.2	3.7	2.7	3.37	31.121	. .	30.865
	7	Anon. $0^h\ 23^m\ 39^s$.	9.0	3	IV–VI.	16 15 2.5	5.8	6.8	8.0	4.4	4.0	5.25	35.855	. .	35.599
	8	Groombridge 73. .	8.5	2	VII, IX.	" " "	"	"	"	"	"	"	34.097	. .	33.810
	9	B. A. C. 225 . . .	5.5	3	IV½–V½.	335 55 4.1	5.1	9.8	9.3	5.6	6.5	6.40	33.341	. .	33.083
	10	32 Camelop., (1st*,) S. P.	. .	3	1–5.	323 0 2.7	3.4	7.8	9.6	4.5	4.1	5.35	27.270	. .	27.018
	11	32 Camelop., (2d *) S. P.	. .	2	IV½, V½.	" " "	"	"	"	"	"	"	27.845	. .	27.603
	12	Nadir	. .	.	. .	199 59 59.1	61.7	62.5	63.0	60.9	63.0	62.53	30.188	. .	. .
7	13	π Aquarii	5.0	3	III–VII.	58 10 4.2	0.9	5.1	4.7	6.6	9.4	5.15	32.519	—0.328	32.191
	14	Anon. $22^h\ 26^m\ 52^s$.	8.2	3	III–VII.	96 10 3.9	3.2	6.4	5.2	6.2	7.9	5.47	31.206	. .	30.885
	15	30 Cephei	5.8	3	IV–VI.	356 0 3.7	2.8	7.6	4.8	5.8	7.2	5.32	33.502	. .	33.178
	16	ι Cephei	5.0	2	V, VI.	353 20 4.5	2.3	7.9	5.2	7.2	8.9	6.00	26.752	. .	26.417
	17	α Ursæ Majoris, S. P. .	. .	3	IV–VI.	301 24 59.2	54.9	60.9	57.8	58.8	60.8	58.73	31.630	. .	31.308
	18	B. A. C. 3821, S. P. .	6.5	3	IV½–V½.	307 55 3.2	0.9	4.1	1.7	3.8	5.5	3.20	32.153	. .	31.827
	19	Lacaille 9443. . .	8.3	3	III–VII.	101 25 2.9	1.7	3.9	4.2	4.1	6.0	3.80	26.091	. .	25.772
	20	λ Draconis, S. P. .	4.5	3	IV½–V½.	309 0 2.4	59.8	3.8	0.3	4.5	5.2	2.67	33.853	. .	33.527
	21	2 Draconis, S. P. . .	6.0	3	IV½–V½.	" " "	"	"	"	"	"	"	34.106	. .	33.780
	22	B. A. C. 8273. . .	5.0	3	IV–VI.	351 50 1.6	58.8	5.1	3.3	3.8	4.2	2.80	34.323	. .	33.988
	23	B. A. C. 8314. . .	7.0	3	IV½–V½.	345 10 1.8	57.7	4.5	59.2	1.9	3.4	1.42	26.602	. .	26.272
	24	B. A. C. 4070, S. P. .	6.3	3	1–5.	325 15 1.7	57.3	3.2	0.4	3.3	4.8	1.78	35.451	. .	35.125
	25	B. A. C. 39 . . .	. .	3	IV½–V½.	342 40 2.2	58.3	6.2	2.1	5.0	5.0	3.13	31.248	. .	30.917
	26	Anon. $0^h\ 23^m\ 39^s$.	8.8	3	III–VII.	16 15 1.8	59.7	3.3	0.4	3.5	3.3	2.00	35.775	. .	35.438
	27	Groombridge 73. .	8.5	2	VII, IX.	" " "	"	"	"	"	"	"	34.048	. .	33.687
	28	Anon. $0^h\ 35^m\ 45^s$.	9.0	3	III–VII.	54 50 0.4	56.5	1.1	0.2	1.2	2.4	0.30	30.456	. .	30.127
	29	B. A. C. 225 . . .	5.5	3	IV½–V½.	335 55 2.2	59.2	5.4	0.8	2.6	4.1	2.38	33.349	. .	33.015
	30	O. Arg. S. 626 . .	5.5	1	V.	83 30 2.0	0.3	4.2	4.9	3.6	5.0	3.33	26.291	. .	25.963
	31	O. Arg. S. 635 . .	6.0	3	III–VII.	" " "	"	"	"	"	"	"	25.915	. .	25.591
	32	Nadir	. .	.	. .	199 59 59.0	57.1	60.2	60.8	59.8	63.9	60.13	30.187	. .	. .
9	33	28 Ursæ Majoris, S. P. .	6.5	3	IV–VI.	303 10 1.3	59.1	5.9	4.2	2.3	0.8	2.27	26.889	—0.339	26.556
	34	79 Draconis	6.0	3	IV–VI.	345 50 3.9	2.2	8.7	6.2	5.1	4.0	5.02	34.262	. .	33.913
	35	B. A. C. 7678. . .	5.8	3	IV½–V½.	339 10 2.6	1.2	8.1	6.9	3.3	2.9	4.17	26.416	. .	26.073
	36	B. A. C. 3495, S. P. .	. .	3	1–5.	323 50 0.6	58.9	4.9	3.1	1.6	0.9	1.67	32.918	. .	32.581
	37	Anon. $22^h\ 22^m\ 21^s$.	9.0	3	III–VII.	69 30 0.6	0.8	4.9	6.8	1.6	3.0	2.95	33.792	. .	33.455
	38	226 Cephei	. .	3	IV½–V½.	343 20 3.5	3.4	8.2	9.4	4.4	5.0	5.65	30.722	. .	30.380
	39	Lacaille 9286. . .	8.0	3	III–VII.	98 45 3.0	4.0	6.1	9.7	3.4	3.8	5.00	25.773	. .	25.442
	40	Moon, S.	. .	2	V, VII.	71 30 4.8	5.2	8.2	11.2	5.8	6.4	6.93	27.286	. .	26.834
	41	B. A. C. 3864, S. P. .	6.0	3	IV½–V½.	304 0 0.5	58.9	5.6	6.0	2.0	0.2	2.20	32.329	. .	31.992
	42	B. A. C. 8213. . .	. .	3	1–5.	332 20 1.3	1.1	7.6	6.9	3.4	1.7	3.67	33.886	. .	33.545
	43	3 Draconis, S. P. .	. .	3	IV½–V½.	306 25 1.0	0.2	5.0	5.8	1.2	1.2	2.40	32.746	. .	32.409
	44	B. A. C. 8314. . .	6.5	3	IV½–V½.	345 10 1.1	0.8	6.1	5.2	1.5	0.9	2.60	26.628	. .	26.287
	45	B. A. C. 4050, S. P. .	5.8	3	IV–VI.	320 30 2.1	0.4	7.8	6.7	1.8	2.4	3.53	32.491	. .	32.153
	46	Lalande 47298 . .	8.0	3	III–VII.	22 25 3.2	5.6	9.2	11.1	5.2	5.4	6.62	31.033	. .	30.687
	47	Lalande 181 . . .	9.3	3	III–VII.	21 30 3.9	5.9	8.8	11.9	6.2	5.1	6.97	27.715	. .	27.369
	48	Nadir	. .	.	. .	200 0 0.0	1.4	4.1	8.1	59.8	2.8	2.70	30.281	. .	. .
18	49	Anon. $22^h\ 22^m\ 20^s$.	9.5	2	V, IX.	69 30 0.1	1.4	4.8	7.8	1.5	3.1	3.12	33.888	—0.363	33.527
	50	38 Ursæ Majoris, S. P. .	5.8	3	IV–VI.	305 20 2.9	3.1	6.9	8.0	4.8	2.7	4.73	30.503	. .	30.147
	51	Lalande 44848 . .	7.5	1	V.	23 34 57.7	59.7	60.8	62.9	58.7	58.9	59.78	30.260	. .	29.897
	52	Anon. $22^h\ 48^m\ 56^s$.	8.0	1	VII.	" " "	"	"	"	"	"	"	35.325	. .	34.948
	53	Anon. $22^h\ 48^m\ 58^s$.	9.0	1	IX.	" " "	"	"	"	"	"	"	32.136	. .	31.733
	54	Lacaille 9359. . .	7.2	3	III–VII.	86 40 1.8	2.2	5.2	9.0	2.2	2.9	3.88	29.045	. .	28.687
	55	ψ^2 Aquarii	5.0	3	III–VII.	68 45 2.4	2.4	5.2	10.2	2.3	4.1	4.43	30.233	. .	29.872
	56	B. A. C. 8180. . .	5.5	3	IV–VI.	349 15 0.9	2.8	7.2	10.4	3.0	2.7	4.50	31.616	. .	31.245
	57	3 Draconis, S. P. . .	. .	3	IV–VI.	306 25 1.8	1.7	4.8	7.6	2.2	2.1	3.37	32.703	. .	32.347
	58	B. A. C. 8273. . .	5.5	3	IV–VI.	351 50 2.1	5.1	8.0	11.1	4.7	3.8	5.80	34.436	. .	34.066
	59	B. A. C. 4036, S. P. .	6.5	3	IV½–V½.	301 15 1.3	3.0	5.4	3.9	2.8	2.1	3.08	32.358	. .	31.996
	60	Lalande 47298 . .	8.0	3	III–VII.	22 25 1.5	2.4	5.8	8.6	2.5	2.9	3.95	30.889	. .	30.519
	61	Lalande 181 . . .	8.5	3	III–VII.	21 30 0.8	2.3	4.2	8.6	2.1	1.9	3.32	27.500	. .	27.130
	62	Lalande 711 . . .	. .	2	II, IX.	20 34 59.1	0.4	2.6	7.1	0.4	59.2	1.47	30.510	. .	30.116
	63	Lalande 713 . . .	. .	3	IV–VI.	" " "	"	"	"	"	"	"	26.915	. .	26.550
	64	Anon. $0^h\ 35^m\ 45^s$.	8.5	3	III–VII.	54 50 1.7	2.2	3.8	9.4	1.2	1.3	3.27	30.738	. .	30.374
	65	Nadir	. .	.	. .	200 0 2.0	4.2	6.9	10.8	3.2	3.5	5.10	30.379	—0.363	. .

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	30.298	48.7	41.8	− 0 37.6	N. 30 45 34.5	35.6	+ 69 39 48.9	− 24.5	Y.	
2	30.298	48.4	41.7	− 1 52.9	71 1 47.3	2 52.5	+ 70 1 41.4	+ 22.3	Y.	
3	30.298	48.1	41.2	− 2 8.9	28 12 2.0	32.1	+ 67 6 12.9	− 26.0	Y.	
4	30.294	47.8	41.1	− 1 4.1	78 46 1.8	4 53.5	+ 62 15 25.9	+ 20.2	Y.	
5	30.296	47.5	41.0	− 2 37.1	54 47 34.5	1 24.7	+ 86 17 22.0	+ 23.9	Y.	
6	30.294	47.2	40.7	− 0 27.1	37 20 23.7	45.7	+ 76 14 48.2	− 23.9	Y.	
7	. .	. .	. .	− 2 55.3	3 47 50.1	4.0	+ 42 41 32.9	− 23.5	Y.	
8	. .	. .	. .	− 1 59.3	3 46 54.1	4.0	+ 42 40 36.9	− 23.5	Y.	
9	30.300	46.7	40.0	− 1 36.5	44 6 30.1	58.2	+ 83 1 7.1	− 22.7	Y.	
10	. .	. .	. .	+ 1 33.4	56 58 21.3	1 30.1	+ 84 6 29.8	+ 21.0	Y.	
11	29.302	46.7	39.8	+ 1 15.1	N. 56 58 39.6	1 30.1	+ 84 6 11.5	+ 21.0	Y.	
12	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
13	29.634	58.0	56.5	− 1 8.6	S. 38 8 56.6	44.6	+ 0 43 57.6	− 13.6	Y.	
14	. .	. .	. .	− 0 27.7	S. 76 9 37.8	3 46.4	− 37 19 45.4	− 1.1	Y.	
15	29.630	58.2	55.6	− 1 39.5	N. 24 1 34.2	25.4	+ 62 55 38.4	− 27.2	Y.	
16	29.632	58.1	55.6	+ 1 52.2	26 38 1.8	28.5	+ 65 32 9.1	− 27.4	Y.	
17	29.630	58.1	55.4	− 0 41.0	78 35 42.2	4 34.4	+ 62 26 4.6	+ 22.0	Y.	
18	. .	. .	55.3	− 0 57.2	N. 72 5 54.0	2 54.3	+ 68 57 32.9	+ 23.3	Y.	
19	29.630	58.0	54.7	+ 2 12.4	S. 81 27 16.2	6 1.7	− 42 39 39.1	− 1.9	Y.	
20	29.630	57.8	55.3	− 1 50.4	N. 71 1 47.8	2 43.9	+ 70 1 49.5	+ 23.3	Y.	
21	. .	. .	55.0	− 1 58.4	71 1 55.7	2 44.0	+ 70 1 41.5	+ 23.2	Y.	
22	29.628	57.8	54.7	− 2 4.9	28 12 2.1	30.5	+ 67 6 11.4	− 26.7	Y.	
23	. .	. .	. .	+ 1 56.8	34 48 1.8	39.6	+ 73 42 20.2	− 26.5	Y.	
24	29.630	57.8	55.2	− 2 40.5	54 47 38.7	1 20.5	+ 86 17 22.0	+ 24.8	Y.	
25	29.630	57.8	55.2	− 0 28.7	37 20 25.6	43.4	+ 76 14 47.8	− 25.7	Y.	
26	. .	. .	. .	− 2 50.3	3 47 48.3	3.8	+ 42 41 30.9	− 23.9	Y.	
27	. .	. .	. .	− 1 55.5	N. 3 46 53.5	3.8	+ 42 40 36.1	− 23.9	Y.	
28	. .	. .	. .	− 0 4.0	S. 34 49 56.3	39.6	+ 4 3 2.9	− 17.4	Y.	
29	29.628	57.5	55.2	− 1 34.4	N. 44 6 32.0	53.9	+ 83 1 4.7	− 23.6	Y.	
30	. .	. .	. .	+ 2 6.4	S. 63 32 9.7	1 53.9	− 24 40 24.8	− 11.7	Y.	
31	. .	. .	. .	+ 2 18.1	S. 63 32 21.4	1 53.9	− 24 40 36.5	− 11.7	Y.	
32	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
33	29.984	49.1	42.0	+ 1 47.8	N. 76 48 9.9	4 7.4	+ 64 14 3.9	+ 21.5	Y.	
34	29.984	48.6	41.3	− 2 2.5	34 11 57.5	40.3	+ 73 6 16.6	− 27.1	Y.	
35	29.984	48.2	41.0	+ 2 3.0	40 47 52.9	51.2	+ 79 42 22.9	− 27.1	Y.	
36	29.986	48.1	40.4	− 1 20.8	N. 56 11 19.2	1 28.4	+ 84 53 33.6	+ 26.2	Y.	
37	. .	. .	. .	− 1 48.2	S. 49 28 14.8	1 9.4	− 10 35 45.4	− 9.9	Y.	
38	29.990	47.7	39.7	− 0 11.9	N. 36 40 6.3	44.3	+ 75 34 29.4	− 27.8	Y.	
39	. .	. .	. .	+ 2 22.7	S. 78 47 27.7	+ 4 52.2	− 39 58 41.1	− 1.1	Y.	
40	29.988	47.0	38.8	+ 1 39.1	S. 51 31 46.0	−60 47.2	− 11 37 20.0	. .	Y.	
41	. .	. .	38.6	− 1 2.4	N. 76 1 0.2	+ 3 55.2	+ 65 1 25.8	+ 23.0	Y.	
42	29.994	46.7	38.2	− 1 51.1	47 41 47.3	1 5.5	+ 86 36 31.6	− 27.1	Y.	
43	29.998	46.4	38.0	− 1 15.4	73 36 13.0	3 20.3	+ 67 26 47.9	+ 23.2	Y.	
44	29.996	46.2	37.8	+ 1 56.3	34 48 1.1	41.5	+ 73 42 21.4	− 27.0	Y.	
45	. .	. .	37.8	− 1 7.4	N. 59 31 3.9	1 41.2	+ 81 33 36.1	+ 25.0	Y.	
46	. .	. .	. .	− 0 21.5	S. 2 24 45.1	2.5	+ 36 28 51.2	− 23.7	Y.	
47	. .	. .	. .	+ 1 22.4	1 31 29.3	1.6	+ 37 22 7.9	− 24.0	Y.	Faint.
48	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
49	30.132	41.8	33.7	− 1 50.4	S. 49 28 12.7	1 10.7	− 10 35 44.6	− 9.2	Y.	
50	30.136	41.7	33.8	− 0 4.6	N. 74 39 59.9	3 37.5	+ 66 22 43.8	+ 25.2	Y.	
51	. .	. .	. .	+ 0 3.2	S. 3 35 3.0	3.8	+ 35 18 32.0	− 24.2	Y.	
52	. .	. .	. .	− 2 34.9	3 32 24.8	3.8	+ 35 21 10.2	− 24.2	Y.	
53	. .	. .	. .	− 0 54.2	3 34 5.5	3.8	+ 35 19 29.5	− 24.2	Y.	
54	30.130	40.8	32.4	+ 0 41.1	66 40 45.0	2 19.9	− 27 49 26.1	− 4.6	Y.	
55	. .	. .	. .	+ 0 4.0	S. 48 45 8.4	1 9.2	− 9 52 38.8	− 11.2	Y.	
56	30.124	40.0	31.2	− 0 39.0	N. 30 45 34.5	36.2	+ 69 39 49.5	− 29.3	Y.	
57	30.124	39.8	30.5	− 1 13.5	73 36 10.1	3 23.9	+ 67 26 47.2	+ 25.6	Y.	
58	30.120	39.4	30.4	− 2 7.3	28 12 1.5	32.7	+ 67 6 13.0	− 29.0	Y.	
59	30.120	39.0	30.3	− 1 2.5	N. 78 45 59.4	4 58.6	+ 62 15 23.2	+ 24.5	Y.	
60	. .	. .	. .	− 0 16.2	S. 2 24 47.7	2.6	+ 36 28 48.5	− 24.9	Y.	
61	. .	. .	. .	+ 1 29.9	1 31 33.2	1.6	+ 37 22 4.0	− 2.5	Y.	
62	. .	. .	. .	− 0 3.6	0 34 57.8	0.6	+ 38 18 40.4	− 24.9	Y.	
63	. .	. .	. .	+ 1 48.0	0 36 49.5	0.7	+ 38 16 48.6	− 24.9	Y.	
64	30.116	38.0	29.3	− 0 11.7	S. 34 49 51.6	42.5	+ 4 3 4.7	− 17.1	Y.	
65	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.			B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
						°	′	″	″	″	″	″	″	″	r.	r.	r.
1872.																	
Nov. 18	1	Weisse 137 . . .	9.0	3	III–VII.	45	40	1.5	3.1	6.4	9.9	3.1	2.6	4.43	33.515	−0.363	33.150
	2	Anon. $1^h\ 12^m\ 27^s$.	8.8	3	III–VII.	"	"	"	"	"	"	"	"	"	31.040	. .	30.675
	3	Anon. $1^h\ 26^m\ 11^s$.	8.8	3	III–VII.	43	50	3.4	6.0	8.2	12.9	4.4	oblit.	6.81	29.458	. .	29.092
	4	O. Arg. S. 992 . .	7.5	3	III–VII.	82	25	2.4	5.6	6.1	11.8	2.8	2.8	5.25	30.042	. .	29.683
	5	Lalande 3412. . .	7.0	3	III–VII.	22	10	1.9	5.1	7.2	12.7	3.2	3.4	5.58	26.969	. .	26.599
20	6	79 Draconis	5.5	3	IV½–V½.	345	50	0.9	58.4	5.2	3.2	2.6	0.1	1.73	34.028	−0.279	33.747
	7	Anon. $22^h\ 0^m\ 9^s$ . .	9.2	3	III–VII.	69	55	3.9	5.2	9.7	10.2	6.2	6.2	6.90	31.988	. .	31.711
	8	32 Ursæ Majoris, S. P. .	6.0	3	IV–VI.	304	40	3.1	1.6	7.0	7.0	4.8	3.0	4.42	26.963	. .	26.691
	9	B. A. C. 7810. . .	7.0	2	V, VI.	352	50	0.5	1.2	5.2	6.9	1.8	1.1	2.78	30.230	. .	29.945
	10	Anon. $22^h\ 26^m\ 54^s$.	9.5	2	VII, IX.	87	0	4.1	5.2	8.7	12.2	5.4	6.1	6.95	34.564	. .	34.297
	11	Lalande 44848 . .	8.0	2	V, VII.	23	35	2.2	4.2	7.1	10.3	4.3	4.1	5.37	30.409	. .	30.114
	12	Anon. $22^h\ 48^m\ 58^s$.	9.0	1	I.	"	"	"	"	"	"	"	"	"	32.108	. .	31.801
	13	Anon. $22^h\ 49^m\ 5^s$.	8.3	1	IX.	"	"	"	"	"	"	"	"	"	35.466	. .	35.147
	14	Lacaille 9359. . .	7.2	2	VII, IX.	86	40	1.2	3.6	7.0	10.1	3.3	3.1	4.72	28.991	. .	28.724
	15	Lacaille 9415. . .	8.8	3	V–IX.	100	10	4.0	5.8	6.6	9.9	3.3	4.0	5.60	31.119	. .	30.855
	16	λ Draconis, S. P. . .	4.5	3	IV–VI.	309	0	2.8	3.2	6.8	7.9	3.1	2.8	4.43	33.495	. .	33.224
	17	2 Draconis, S. P. . .	6.5	3	IV–VI.	"	"	"	"	"	"	"	"	"	33.835	. .	33.564
	18	B. A. C. 8273. . .	5.0	3	IV–VI.	351	50	3.7	6.8	10.9	12.8	6.2	3.9	7.38	34.444	. .	34.158
	19	B. A. C. 4050, S. P. .	6.0	3	IV–VI.	320	30	1.5	1.4	7.8	8.1	2.2	2.0	3.83	32.432	. .	32.173
	20	Lalande 47310 . .	9.0	3	IV, V, VII.	22	20	0.7	3.5	6.4	9.0	2.5	1.9	4.00	31.242	. .	30.958
	21	Lalande 201 . . .	9.0	3	III–VII.	20	35	2.9	5.3	8.2	11.8	4.4	2.8	5.90	31.329	. .	31.042
	22	Anon. $0^h\ 24^m\ 39^s$.	8.0	2	I, IX.	20	35	1.9	6.0	8.7	12.3	4.7	3.0	6.10	30.618	. .	30.301
	23	Lalande 713 . . .	7.0	3	IV–VI.	"	"	"	"	"	"	"	"	"	27.015	. .	26.734
	24	Anon. $0^h\ 35^m\ 52^s$.	9.5	2	V, IX.	54	44	59.7	62.3	64.7	69.8	61.7	60.0	63.03	28.619	. .	28.334
	25	Nadir	. .	.	. .	200	0	0.0	3.8	4.7	10.9	0.0	2.1	3.58	30.245	. .	. .
	26	Weisse 137 . . .	9.0	3	III–VII.	45	40	2.9	5.2	9.1	11.9	4.2	2.9	6.03	33.499	. .	33.218
	27	Anon. $1^h\ 26^m\ 21^s$.	9.0	3	III–VII.	43	50	3.4	7.2	8.8	13.0	5.3	oblit.	7.01	29.466	. .	29.184
	28	Anon. $1^h\ 27^m\ 15^s$.	9.0	1	IX.	"	"	"	"	"	"	"	"	"	38.227	. .	37.929
	29	O. Arg. S. 992 . .	7.5	3	V–IX.	82	25	3.1	7.7	8.4	13.9	5.8	3.4	7.05	30.051	. .	29.778
	30	Lalande 3390. . .	6.0	3	III–VII.	22	5	0.0	4.1	7.5	10.9	2.8	2.0	4.55	29.990	. .	29.704
23	31	B. A. C. 3495, S. P. .	6.5	3	1–5.	323	50	1.0	1.0	5.2	3.1	4.2	2.8	2.88	32.953	−0.274	32.680
	32	26 Cephei	6.0	3	IV–VI.	354	25	2.8	4.3	7.7	7.5	7.8	5.7	5.97	30.802	. .	30.522
	33	B. A. C. 3652, S. P. .	5.8	3	IV–VI.	308	40	2.7	0.7	5.9	3.1	5.2	3.3	3.48	28.845	. .	28.579
	34	ι Cephei	5.0	3	IV–VI.	353	20	4.1	4.4	8.4	8.4	8.2	6.0	6.58	26.707	. .	26.427
	35	β Piscium	4.5	3	III–VII.	55	45	0.1	58.3	1.9	4.9	2.3	2.6	1.68	30.749	. .	30.474
	36	Lacaille 9415. . .	8.5	3	V–IX.	100	9	55.9	57.7	58.7	59.8	58.2	58.3	58.10	30.652	. .	30.356
	37	λ Draconis, S. P. . .	5.0	3	IV–VI.	309	0	1.9	0.8	4.0	2.5	4.7	3.0	2.82	33.612	. .	33.346
	38	2 Draconis, S. P. . .	6.0	3	IV–VI.	309	0	1.5	0.4	4.2	2.9	4.7	3.7	2.90	33.877	. .	33.611
	39	B. A. C. 8273. . .	. .	3	IV–VI.	351	50	4.5	5.8	10.1	10.1	9.2	6.8	7.75	34.511	. .	34.230
	40	B. A. C. 8314. . .	7.0	3	IV–VI.	345	9	59.1	58.4	63.6	61.1	61.7	60.4	60.72	26.595	. .	26.311
	41	Lalande 47310 . .	9.0	3	III–VII.	22	20	3.1	4.6	7.0	8.1	6.8	6.2	5.97	31.270	. .	30.989
	42	Lalande 65 . . .	8.2	3	III–VII.	20	35	1.2	1.7	4.3	4.9	4.0	2.8	3.15	33.189	. .	32.907
	43	Lalande 201 . . .	8.5	3	V–IX.	"	"	"	"	"	"	"	"	"	31.093	. .	30.799
	44	B. A. C. 4193, S. P. .	7.5	3	1–5.	323	0	1.2	0.3	5.9	4.8	3.7	3.0	3.15	24.711	. .	24.438
	45	Lalande 849 . . .	7.5	3	III–VII.	22	45	0.0	0.2	3.6	4.0	2.2	2.1	2.02	29.277	. .	28.996
	46	Anon. $0^h\ 35^m\ 47^s$.	9.5	3	V–IX.	54	45	3.8	4.7	7.6	9.1	7.9	6.0	6.52	28.511	. .	28.233
	47	Nadir	. .	.	. .	200	0	0.4	2.7	3.1	7.2	2.3	4.2	3.32	30.234	. .	. .
	48	Weisse 144 . . .	9.0	3	V–IX.	46	0	5.1	4.8	8.3	8.9	7.9	6.9	6.98	30.705	. .	30.424
	49	50 Andromedæ . . .	4.8	3	III–VII.	18	10	2.3	2.7	7.1	7.9	4.6	4.0	4.77	35.389	. .	35.107
	50	τ Ceti	5.0	3	IV–VI.	75	30	2.7	2.4	7.1	7.2	4.1	3.3	4.47	32.893	. .	32.620
	51	Lalande 3412 . .	7.0	3	IV–VI.	22	10	4.8	5.5	10.1	10.4	7.8	7.4	7.67	27.067	. .	26.791
27	52	B. A. C. 8002. . .	6.5	3	III–VII.	89	0	3.8	6.8	8.5	10.5	6.7	6.5	7.13	30.814	−0.323	30.497
	53	Lalande 45323 . .	8.0	3	IV–VI.	20	40	2.8	5.8	8.4	9.3	6.8	5.3	6.40	30.924	. .	30.599
	54	ψ^2 Aquarii	5.0	3	III–VII.	68	45	1.4	4.1	6.7	9.2	4.2	4.7	5.05	30.156	. .	29.835
	55	Anon. $23^h\ 20^m\ 17^s$.	8.0	3	IV–VI.	352	40	0.7	2.8	7.1	7.2	3.4	2.9	4.02	29.347	. .	29.017
	56	Weisse 609 . . .	9.0	2	V, IX.	60	40	3.0	4.1	6.8	9.8	5.0	6.2	5.82	26.782	. .	26.457
	57	Weisse 767 . . .	7.3	3	V–IX.	60	15	0.0	59.8	3.2	5.2	0.5	1.9	1.77	30.738	. .	30.412
	58	Lacaille 9747. . .	7.3	3	III–VII.	85	25	1.9	2.1	6.1	9.4	3.5	3.1	4.35	27.397	. .	27.079
	59	Nadir	. .	.	. .	200	0	1.5	2.8	5.4	8.9	2.2	4.0	4.13	30.308	. .	. .
	60	B. A. C. 175 . . .	6.0	3	IV–VI.	353	25	4.2	6.9	10.9	11.3	7.7	7.0	8.00	26.872	. .	26.543
	61	B. A. C. 4339, S. P. .	6.2	2	1, 5.	323	0	0.7	0.7	6.5	5.1	3.2	1.4	2.93	27.420	. .	27.099
	62	32 Camelopardi, S. P. .	5.5	2	2, 4.	"	"	"	"	"	"	"	"	"	28.010	. .	27.688
	63	O. Arg. S. 635 . .	6.2	3	IV–VI.	83	30	2.9	3.1	7.1	9.8	3.9	3.6	5.07	26.124	. .	25.802
	64	Weisse I, 144 . .	8.8	3	III–VII.	46	0	2.2	5.1	7.8	9.8	5.6	4.1	5.77	30.727	. .	30.402
	65	50 Andromedæ . . .	4.5	3	III–VII.	18	5	4.6	7.1	10.1	11.1	6.5	5.8	7.53	26.013	. .	25.682
	66	τ Ceti	5.0	3	V–IX.	75	30	2.2	4.2	8.8	11.1	4.6	3.9	5.80	33.001	−0.323	32.681

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	′ ″		
1	. .	. .	. .	− 1 38.6	S. 25 38 25.8	29.3	+ 13 14 43.7	− 19.2	Y.	
2	30.112	38.2	28.6	− 0 21.1	25 39 43.3	29.4	+ 13 13 26.1	− 19.1	Y.	
3	. .	. .	. .	+ 0 28.4	23 50 35.2	27.0	+ 15 2 36.6	− 19.3	Y.	Corr., −0′.81, applied to mean of A, B, C, D.
4	. .	. .	. .	+ 0 9.9	62 25 15.2	1 56.7	− 23 33 33.1	− 11.2	Y.	
5	30.108	37.2	28.0	+ 1 46.5	S. 2 11 52.1	2.4	+ 36 41 44.3	− 21.8	Y.	
6	30.080	45.3	31.2	− 1 57.3	N. 34 11 55.6	41.2	+ 73 6 15.6	− 27.7	Y.	
7	. .	. .	. .	− 0 53.6	S. 49 54 13.3	1 12.0	− 11 1 46.5	− 8.0	Y.	
8	30.090	43.4	30.8	+ 1 43.6	N. 75 18 12.0	3 48.1	+ 65 44 21.1	+ 24.6	Y.	
9	30.094	42.8	30.6	+ 0 1.7	N. 27 9 55.5	31.2	+ 66 4 5.5	− 28.4	Y.	
10	. .	. .	. .	− 2 14.6	S. 66 57 52.4	2 22.2	− 28 6 35.8	− 3.0	Y.	
11	. .	. .	. .	− 0 3.6	3 35 1.8	3.8	+ 35 18 33.2	− 24.2	Y.	
12	. .	. .	. .	− 0 56.4	3 34 9.0	3.8	+ 35 19 26.0	− 24.2	Y.	
13	. .	. .	. .	− 2 41.2	3 32 24.2	3.8	+ 35 21 10.8	− 24.2	Y.	
14	30.102	40.2	29.0	+ 0 40.0	66 40 44.7	2 20.7	− 27 49 26.6	− 3.4	Y.	
15	30.104	40.0	29.2	− 0 26.8	S. 80 9 38.8	5 40.3	− 41 21 40.3	− 0.5	Y.	
16	30.120	40.3	29.0	− 1 41.0	N. 71 1 36.5	2 56.0	+ 70 1 48.7	+ 26.7	Y.	
17	. .	. .	. .	− 1 51.6	71 1 47.2	2 56.1	+ 70 1 37.9	+ 26.7	Y.	
18	30.124	38.8	28.3	− 2 10.2	28 12 2.8	32.8	+ 67 6 14.4	− 29.3	Y.	Unsteady.
19	30.130	38.0	28.2	− 1 8.0	N. 59 31 4.2	1 43.7	+ 81 33 33.3	+ 28.1	Y.	
20	. .	. .	. .	− 0 30.0	S. 2 19 34.0	2.5	+ 36 34 2.3	− 25.0	Y.	
21	. .	. .	. .	− 0 32.6	0 34 33.3	0.6	+ 38 19 4.9	− 25.3	Y.	
22	. .	. .	. .	− 0 9.4	0 34 56.7	0.6	+ 38 18 41.5	− 25.0	Y.	
23	. .	. .	. .	+ 1 42.3	0 36 48.4	0.7	+ 38 16 49.7	− 25.0	Y.	
24	30.148	37.5	28.0	+ 0 52.2	34 45 55.2	42.5	+ 4 7 1.1	− 17.0	Y.	
25	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
26	30.170	37.5	27.0	− 1 40.8	25 38 25.2	29.5	+ 13 14 44.1	− 19.1	Y.	
27	. .	. .	. .	+ 0 25.6	23 50 32.6	27.2	+ 15 2 39.0	− 18.2	Y.	Corr., −1′.09, applied to mean of A, B, C, D.
28	. .	. .	. .	− 4 8.3	23 45 58.7	27.1	+ 15 7 13.0	− 19.2	Y.	
29	30.166	37.0	26.8	+ 0 7.0	62 25 14.0	1 57.2	− 23 33 32.4	− 11.7	Y.	
30	. .	. .	. .	+ 0 9.3	S. 2 5 13.8	2.2	+ 36 48 22.8	− 22.0	Y.	
31	30.164	45.0	38.8	− 1 23.9	N. 56 11 21.0	1 29.3	+ 84 53 30.9	+ 28.1	Y.	
32	30.168	45.0	38.6	− 0 16.3	25 35 10.4	28.7	+ 64 29 17.9	− 28.6	Y.	
33	30.166	44.7	37.8	+ 0 44.5	71 19 12.0	2 56.0	+ 69 44 13.2	+ 26.7	Y.	
34	30.165	44.5	37.3	+ 1 51.9	N. 26 38 1.5	30.2	+ 65 32 10.5	− 29.3	Y.	
35	. .	. .	. .	− 0 14.8	S. 35 44 46.8	43.3	+ 3 8 8.7	− 14.9	Y.	
36	30.166	44.0	36.6	− 0 11.2	S. 80 9 47.0	5 35.3	− 41 21 43.5	− 0.3	Y.	
37	30.165	43.8	36.2	− 1 44.8	N. 71 1 42.0	2 53.7	+ 70 1 45.5	+ 27.5	Y.	
38	30.165	43.8	36.1	− 1 53.1	71 1 50.2	2 53.7	+ 70 1 37.3	+ 27.5	Y.	
39	30.166	43.3	36.2	− 2 12.5	28 12 4.7	32.3	+ 67 6 15.8	− 29.8	Y.	
40	. .	. .	36.1	+ 1 55.5	N. 34 48 3.8	41.9	+ 73 42 24.5	− 30.1	Y.	
41	. .	. .	. .	− 0 31.0	S. 2 19 35.0	2.4	+ 36 34 1.4	− 25.3	Y.	
42	. .	. .	. .	− 1 31.0	0 33 32.1	0.6	+ 38 20 6.1	− 25.6	Y.	
43	. .	. .	. .	− 0 25.0	S. 0 34 38.1	0.6	+ 38 19 0.1	− 25.5	Y.	
44	30.164	43.0	35.6	+ 2 54.2	N. 56 57 2.7	1 32.5	+ 84 7 46.0	+ 28.5	Y.	
45	. .	. .	. .	+ 0 31.4	S. 2 45 33.5	2.9	+ 36 8 2.4	− 24.8	Y.	
46	. .	. .	36.0	+ 0 51.3	34 45 57.9	41.9	+ 4 6 59.0	− 16.9	Y.	
47	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
48	30.162	43.0	35.7	− 0 13.3	S. 25 59 53.7	29.4	+ 12 53 15.7	− 19.0	Y.	
49	. .	. .	. .	− 2 39.9	N. 1 52 35.2	2.0	+ 40 46 16.0	− 23.6	Y.	
50	30.160	42.8	35.0	− 1 22.0	S. 55 28 42.4	1 27.6	− 17 36 31.2	− 11.7	Y.	
51	. .	. .	. .	+ 1 40.5	2 11 48.2	2.3	+ 36 41 48.3	− 22.3	Y.	
52	30.172	45.0	37.0	− 0 15.6	68 59 51.6	2 35.6	− 30 8 48.4	− 3.0	Y.	
53	. .	. .	. .	− 0 18.8	0 39 47.6	0.7	+ 38 13 50.5	− 25.5	Y.	
54	30.180	44.5	37.3	+ 0 5.2	S. 48 45 10.2	1 8.5	− 9 52 39.9	− 10.6	Y.	
55	. .	. .	. .	+ 0 30.8	N. 27 19 25.2	31.1	+ 66 13 35.1	− 30.4	Y.	
56	. .	. .	. .	+ 1 50.9	S. 40 41 56.8	51.8	− 1 49 9.8	− 13.9	Y.	
57	30.188	44.0	36.2	− 0 12.9	40 14 48.9	51.0	− 1 22 1.1	− 14.2	Y.	
58	30.204	43.4	36.0	+ 1 31.5	S. 65 26 35.8	2 11.4	− 26 35 8.4	− 6.5	Y.	
59	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
60	30.202	43.2	35.6	+ 1 48.2	N. 26 33 3.8	30.2	+ 65 27 12.8	− 29.4	Y.	
61	30.204	43.2	35.4	+ 1 30.9	56 58 26.2	1 32.8	+ 84 6 22.2	+ 28.7	Y.	
62	. .	. .	. .	+ 1 12.4	N. 56 58 44.7	1 32.8	+ 84 6 3.7	+ 28.7	Y.	
63	. .	. .	. .	+ 2 11.5	S. 63 32 16.5	2 1.0	− 24 40 38.7	− 8.7	Y.	
64	30.212	42.8	34.5	− 0 12.6	S. 25 59 53.2	29.5	+ 12 53 16.1	− 19.1	Y.	
65	. .	. .	. .	+ 2 15.2	N. 1 52 37.2	2.0	+ 40 46 18.0	− 24.3	Y.	
66	30.214	42.2	34.7	− 1 23.9	S. 55 28 41.9	1 27.8	− 16 36 30.9	− 11.5	Y.	

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DATE.	Number.	OBJECT.	Magnitude.	No. of mic. readings.	Transit Wires.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MICROMETER. Observed.	Nadir cor.	Corr'd.
1872.						° ′ ″	″	″	″	″	″	″	r.	r.	r.
Nov. 27	1	ε Cassiopeæ . . .	4.5	3	IV–VI.	355 50 3.4	6.4	10.8	11.4	5.1	4.7	6.97	27.923	−0.323	27.594
	2	α Draconis, S. P. . .	. .	3	IV–VI.	303 55 0.0	0.7	5.2	6.2	2.7	0.0	2.47	27.382	. .	27.065
	3	Anon. $2^h\ 13^m\ 13^s$.	8.5	3	III, V, IX.	70 5 3.4	6.9	9.7	13.1	6.8	7.0	7.82	31.226	. .	30.906
Dec. 2	4	Weisse (2) 882 . .	6.5	3	III–VII.	14 20 3.1	3.9	6.2	4.2	6.8	5.2	4.90	32.500	−0.388	32.103
	5	Anon. $4^h\ 2^m\ 21^s$.	9.0	3	V–IX.	66 39 58.5	56.4	60.1	60.9	62.2	61.6	59.95	26.948	. .	26.560
	6	58 Tauri	7.0	3	III–VII.	44 5 2.2	2.2	4.8	4.4	5.6	5.9	4.18	28.969	. .	28.578
	7	Anon. $4^h\ 24^m\ 9^s$.	9.3	3	III–VII.	23 15 1.9	0.8	4.4	3.0	5.7	4.0	3.30	32.294	. .	31.899
	8	Weisse 728 . . .	8.0	3	III–VII.	55 35 2.7	1.9	5.7	5.9	7.2	5.0	4.73	26.951	. .	26.562
	9	B. A. C. 1510. . .	6.0	3	IV½–V½.	345 0 2.7	0.8	6.2	1.9	5.8	5.1	3.75	27.019	. .	26.629
	10	ι Tauri	5.5	3	III–VII.	37 30 2.4	1.5	4.9	4.2	6.7	4.2	3.98	32.656	. .	32.264
	11	O. Arg. S. 3717 . .	8.3	3	III–VII.	84 25 0.9	0.2	4.8	4.9	6.2	4.7	3.62	31.724	. .	31.341
	12	Weisse (2) 287 . .	8.6	3	III–VII.	28 30 1.9	2.2	6.0	6.3	6.4	6.5	4.88	28.828	. .	28.434
	13	O. Arg. S. 3917 . .	8.5	2	I, IX.	75 0 1.7	1.2	6.1	5.6	6.2	5.3	4.35	27.022	. .	26.648
	14	Nadir	. .	.	. .	200 0 1.8	1.2	4.2	5.8	4.1	5.9	3.83	30.364	. .	. .
4	15	Anon. $23^h\ 20^m\ 18^s$.	8.0	3	IV–VI.	352 40 0.5	2.2	6.9	7.8	4.5	1.0	3.82	29.357	−0.355	28.995
	16	Weisse (2) 639 . .	8.5	2	III, IX,	23 45 1.1	3.4	6.0	7.6	4.4	2.1	4.10	25.404	. .	25.027
	17	Weisse (2) 658 . .	7.5	2	III, V.	" " "	"	"	"	"	"	"	27.268	. .	26.910
	18	Anon. $23^h\ 38^m\ 31^s$.	7.8	3	III–VII.	60 15 0.9	2.5	5.8	7.1	4.0	3.1	3.90	30.806	. .	30.451
	19	Anon. $23^h\ 45^m\ 27^s$.	9.0	3	III–VII.	90 55 2.6	5.2	7.8	10.2	5.8	3.6	5.87	29.175	. .	28.866
	20	Lacaille 9747. . .	7.5	3	III–VII.	85 25 1.5	3.8	7.9	10.2	5.9	4.1	5.57	27.474	. .	27.124
	21	Lalande 100. . .	8.3	3	III–VII.	22 10 4.3	5.7	9.7	11.8	7.2	5.9	7.43	29.189	. .	28.827
	22	Nadir	. .	.	. .	199 59 58.8	61.0	62.7	66.1	60.3	60.0	61.48	30.256	. .	. .
	23	21 Cassiopeæ . . .	5.5	3	IV½–V½.	344 35 0.8	1.3	5.7	5.4	4.4	1.0	3.10	27.453	. .	27.096
	24	32 Camelop., (1st *,) S.P.	. .	3	IV½–V½.	323 0 0.8	1.5	5.9	6.3	3.8	1.2	3.25	27.498	. .	27.150
	25	32 Camelop., (2d *,) S.P.	. .	3	IV–VI.	" " "	"	"	"	"	"	"	28.066	. .	27.752
	26	O. Arg. S. 635 . .	6.5	3	III–VII.	83 30 3.7	4.9	7.3	11.3	6.8	4.9	6.48	26.185	. .	25.834
	27	B. A. C. 482 . . .	5.8	3	III–VII.	1 35 2.9	6.3	9.8	12.8	7.5	5.1	7.40	32.422	. .	32.052
	28	τ Ceti	5.0	3	III–VII.	75 30 0.6	1.5	5.8	8.8	3.2	1.1	3.50	32.955	. .	32.603
	29	Lalande 3390 . .	7.5	3	III–VII.	22 5 3.4	6.8	9.2	11.6	6.2	5.2	7.07	30.164	. .	29.802
	30	50 Cassiopeæ . . .	5.0	3	IV–VI.	347 5 2.9	3.9	9.7	9.7	5.6	4.4	6.03	28.964	. .	28.600
	31	Anon. $2^h\ 13^m\ 15^s$.	8.3	3	III–VII.	70 5 2.3	6.3	8.8	12.0	6.8	6.5	7.12	31.204	. .	30.851
	32	5 Ursæ Minoris, S. P. .	. .	3	IV½–V½.	315 10 2.7	3.0	7.2	8.7	6.2	3.7	5.25	27.881	. .	27.529
13	33	Weisse (2) 639 . .	8.2	1	V.	23 50 4.3	8.7	8.6	12.5	7.1	4.9	7.68	34.964	−0.255	34.709
	34	Weisse (2) 658 . .	7.3	3	V–IX.	" " "	"	"	"	"	"	"	36.842	. .	36.573
	35	Anon. $23^h\ 41^m\ 28^s$.	8.5	1	V.	355 30 58.9	1.3	5.6	5.2	2.2	58.1	1.88	34.991	. .	34.736
	36	Nadir	. .	.	. .	200 0 1.4	2.9	4.7	8.9	2.8	2.1	3.80	30.230	. .	. .
	37	B. A. C. 4150, S. P. .	5.8	3	I–5.	326 5 2.5	1.2	5.4	6.1	3.2	1.4	3.30	33.545	. .	33.293
	38	16 Cassiopeæ . . .	5.5	3	IV–VI.	352 50 3.2	5.6	8.2	11.3	6.3	3.0	6.27	28.579	. .	28.317
	39	B. A. C. 175 . . .	5.8	3	IV–VI.	353 25 0.2	2.2	5.9	7.1	4.2	0.1	3.28	26.691	. .	26.430
	40	7 Draconis, S. P. . .	5.5	3	IV–VI.	306 25 2.1	1.9	5.8	5.9	3.8	1.5	3.50	28.688	. .	28.440
	41	Weisse 144 . . .	8.3	3	III–VII.	46 0 5.1	7.9	9.9	13.0	8.1	6.0	8.33	30.739	. .	30.482
	42	B. A. C. 482 . . .	5.5	3	IV–VI.	1 35 2.0	5.2	9.2	10.8	6.2	2.4	5.97	32.306	. .	32.046
	43	α Draconis, S. P. . .	4.5	3	IV–VI.	303 55 4.2	5.2	9.2	10.8	7.7	3.8	6.82	27.646	. .	27.397
	44	Weisse 186 . . .	8.3	3	III–VII.	70 5 0.8	4.1	6.0	10.1	5.8	3.6	5.07	30.939	. .	30.686
	45	5 Ursæ Minoris, S. P. .	5.5	3	IV½–V½.	315 10 0.6	1.3	4.8	6.3	4.4	1.6	3.17	27.975	. .	27.723
	46	B. A. C. 814 . . .	. .	1	VI.	351 35 1.2	2.9	7.5	9.1	5.5	1.2	4.57	26.481	. .	26.215
	47	B. A. C. 896 . . .	5.5	3	IV½–V½.	340 0 2.7	5.7	9.1	11.8	6.1	2.9	6.38	31.371	. .	31.113
	48	Lacaille 1389. . .	6.5	3	III–VII.	91 15 1.2	4.9	7.1	11.2	5.1	2.9	5.40	35.082	. .	34.833
	49	δ^2 Tauri	5.0	3	V–IX.	41 45 6.5	10.9	11.3	16.1	9.1	7.2	10.18	31.914	. .	31.653
	50	Weisse (2) 618 . .	7.0	3	III–VII.	43 15 1.2	5.1	7.7	11.5	4.7	4.1	5.72	27.283	. .	27.025
	51	Weisse 728 . . .	8.3	3	III–VII.	55 35 0.7	2.8	5.8	11.7	5.1	1.9	4.67	26.841	. .	26.585
	52	Moon, S.	. .	2	VII, IX.	35 55 4.2	5.2	9.5	13.5	7.1	4.5	7.33	35.891	−0.255	35.494

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Number.	Barometer.	THERM'S. At.	THERM'S. Ex.	Instrumental corrections.	Apparent Zenith Distance.	Refraction.	Observed Declination.	Reduction to 1870.0.	Observer.	REMARKS.
	in.	°	°	′ ″	° ′ ″	′ ″	° ′ ″	″		
1	30.214	42.0	34.8	+ 1 15.3	N. 24 8 37.7	27.1	+ 63 2 43.6	− 25.8	Y.	
2	30.224	42.0	34.0	+ 1 31.9	N. 76 3 25.6	4 0.1	+ 64 58 55.5	+ 22.0	Y.	
3	. .	. .	. .	− 0 28.4	S. 50 4 39.5	1 10.0	− 11 12 10.7	− 13.0	Y.	
4	29.852	45.2	44.4	− 1 5.8	N. 5 41 0.9	5.8	+ 44 34 45.5	− 16.2	Y.	
5	. .	. .	. .	+ 1 47.7	S. 46 41 47.7	1 2.2	− 7 49 11.1	− 11.3	Y.	
6	. .	. .	. .	+ 0 44.5	24 5 48.7	26.2	+ 14 47 23.9	− 12.3	Y.	
7	29.870	45.3	44.3	− 0 59.5	3 14 3.8	3.3	+ 35 39 31.7	− 12.0	Y.	
8	. .	. .	. .	+ 1 47.7	S. 35 36 52.4	42.1	+ 3 16 4.3	− 10.7	Y.	
9	29.884	45.2	43.4	+ 1 45.6	N. 34 58 10.7	41.1	+ 73 52 30.6	− 8.4	Y.	
10	. .	. .	. .	− 1 10.9	S. 17 28 53.1	18.5	+ 21 24 27.2	− 9.4	Y.	
11	. .	. .	. .	− 0 42.0	64 24 21.6	2 2.3	− 25 32 45.1	− 9.5	Y.	
12	. .	. .	. .	+ 0 49.0	8 30 53.9	8.8	+ 30 22 36.1	− 8.6	Y.	
13	. .	. .	. .	+ 1 45.0	S. 55 1 49.3	1 24.1	− 16 9 34.6	− 9.1	Y.	
14	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
15	30.214	38.2	33.2	+ 0 31.5	N. 27 19 24.7	31.4	+ 66 13 34.9	− 30.8	Y.	
16	. .	. .	. .	+ 2 35.7	S. 3 47 39.8	4.0	+ 35 5 55.0	− 25.1	Y.	
17	. .	. .	. .	+ 1 36.8	3 46 40.9	4.0	+ 35 6 53.9	− 25.1	Y.	
18	. .	. .	. .	− 0 14.1	40 14 49.8	51.5	− 1 22 2.5	− 13.6	Y.	
19	30.212	38.0	32.5	+ 0 36.7	70 55 42.6	2 54.3	− 32 4 58.1	− 3.4	Y.	
20	. .	. .	. .	+ 1 30.1	65 26 35.6	2 12.6	− 26 35 9.4	− 5.9	Y.	
21	. .	. .	. .	+ 0 36.7	S. 2 10 44.2	2.3	+ 36 42 52.3	− 26.2	Y.	
22	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
23	30.226	38.0	31.2	+ 1 30.9	N. 35 23 26.0	43.4	+ 74 17 48.2	− 32.7	Y.	
24	. .	. .	. .	+ 1 29.2	56 58 27.5	1 33.8	+ 84 6 19.9	+ 28.3	Y.	
25	30.226	37.8	30.3	+ 1 10.4	N. 56 58 46.3	1 33.8	+ 84 6 1.1	+ 28.2	Y.	
26	. .	. .	. .	+ 2 10.5	S. 63 32 16.9	2 2.3	− 24 40 40.4	− 7.6	Y.	
27	30.220	36.5	29.3	− 1 4.2	N. 18 25 56.8	20.4	+ 57 19 56.0	− 27.5	Y.	
28	. .	. .	. .	− 1 21.5	S. 55 28 42.0	1 28.9	− 16 36 32.1	− 10.5	Y.	
29	. .	. .	. .	+ 0 6.2	S. 2 5 13.3	2.2	+ 36 48 23.3	− 23.5	Y.	
30	30.228	36.5	28.2	+ 0 43.8	N. 32 54 10.1	39.7	+ 71 48 28.6	− 27.3	Y.	
31	30.228	36.2	27.8	− 0 26.7	S. 50 4 40.5	1 13.3	− 11 12 15.0	− 12.0	Y.	
32	30.222	35.8	27.7	+ 1 17.4	N. 64 48 37.4	2 10.1	+ 76 15 33.7	+ 23.5	Y.	
33	. .	. .	. .	− 2 27.5	S. 3 47 40.2	4.1	+ 35 5 54.5	− 25.0	Y.	
34	30.026	34.2	27.0	− 3 25.8	S. 3 46 41.8	4.0	+ 35 6 53.0	− 25.0	Y.	
35	. .	. .	. .	− 2 28.3	N. 24 32 26.4	27.9	+ 63 26 33.1	− 31.3	Y.	
36	. .	. .	. .	. .	. . . .	. .	. . . .	. .	Y.	
37	30.016	34.1	28.0	− 1 43.1	53 56 39.8	1 23.7	+ 87 8 17.7	+ 32.7	Y.	
38	30.008	34.0	28.2	+ 0 52.7	27 9 1.0	31.3	+ 66 3 11.1	− 31.9	Y.	
39	30.004	33.9	28.1	+ 1 51.8	26 33 4.9	30.5	+ 65 27 14.2	− 31.8	Y.	
40	30.000	34.0	28.4	+ 0 48.8	N. 73 34 7.7	3 24.1	+ 67 28 49.4	+ 31.1	Y.	
41	29.992	33.8	28.3	− 0 15.1	S. 25 59 53.2	29.7	+ 12 53 15.9	− 18.7	Y.	
42	. .	. .	. .	− 1 4.1	N. 18 25 58.1	20.3	+ 57 19 57.2	− 29.0	Y.	
43	29.996	33.5	28.7	+ 1 21.5	N. 76 3 31.7	4 1.1	+ 64 58 48.4	+ 27.5	Y.	
44	. .	. .	. .	− 0 21.5	S. 50 4 43.6	1 12.7	− 11 12 17.5	− 11.0	Y.	
45	29.996	33.5	28.5	+ 1 11.3	N. 64 48 45.5	2 8.9	+ 76 15 26.8	+ 26.8	Y.	
46	. .	. .	. .	+ 1 58.5	28 22 56.9	32.9	+ 67 17 8.6	− 26.2	Y.	
47	29.994	33.2	28.0	− 0 34.8	N. 40 0 28.5	51.2	+ 78 54 58.5	+ 25.5	Y.	
48	30.028	32.2	27.0	− 2 31.3	S. 71 12 34.1	2 58.2	− 32 21 53.4	− 6.5	Y.	
49	. .	. .	. .	− 0 51.7	21 44 18.4	24.4	+ 17 8 56.0	− 12.1	Y.	
50	. .	. .	. .	+ 1 33.2	23 16 38.9	26.3	+ 15 36 33.6	− 11.1	Y.	
51	30.024	32.5	25.5	+ 1 46.9	35 36 51.6	+ 43.9	+ 3 16 3.3	− 9.7	Y.	
52	. .	. .	. .	− 2 52.0	S. 15 52 15.3	−29 52.8	+ 23 31 16.3	. .	Y.	

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WITH

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1872.

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THE EQUATORIAL.

IANTHE, (98).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\ \Delta\ p$	δ	$l.\ \Delta\ p$	Star.	Observer.
1872.	h. m. s.	m. s.	′ ″	s. ″	h. m. s.		° ′ ″			
Jan. 5	3 34 2.1	+ 2 25.23	+ 4 24.0	0.00+0.1	7 34 4.08	9.7667*n*	+ 47 2 30.3	0.0946	*a*	H.
9	3 6 42.1	− 3 0.41	+ 3 35.7	0.00+0.1	7 28 38.52	9.7880*n*	+ 47 1 42.5	0.2236	*a*	H.
10	2 19 3.2	+ 1 21.05	− 1 59.3	0.00−0.0	7 27 18.48	9.8177*n*	+ 47 0 35.0	0.4214	*b*	H.
12	3 10 3.1	− 1 27.31	− 5 19.4	0.00−0.1	7 24 30.15	9.7806*n*	+ 46 57 15.1	0.1839	*b*	H.
17	3 23 20.5	− 1 3.46	− 4 13.6	0.00−0.1	7 17 43.56	9.7455*n*	+ 46 42 28.5	9.9956	*c*	H.

COMPARISON STARS.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.−O. Peters.
1872.	h. m. s.		h. m. s.	s.	° ′ ″	″			s. ′ ″
Jan. 5	8 34 11	*a*	7 31 38.22	+ 0.63	+ 46 58 6.4	− 0.2	Argelander	24.8	+ 55.14−2 25.5
9	7 51 12	*a*	7 31 38.22	+ 0.71	+ 46 58 6.4	+ 0.3	Argelander	15.5	+ 55.32−2 13.6
10	6 59 45	*b*	7 25 56.71	+ 0.72	+ 47 2 33.7	+ 0.6	Argelander	15.5	+ 55.51−2 7.8
12	7 42 45	*b*	7 25 56.71	+ 0.75	+ 47 2 33.7	+ 0.9	Argelander	21.7	+ 55.63−2 3.2
17	7 36 20	*c*	7 18 46.22	+ 0.80	+ 46 46 40.2	+ 2.0	Argelander, (1); Rumker, (6) .	27.9	+ 55.34−1 51.2

HESTIA, (46).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\ \Delta\ p$	δ	$l.\ \Delta\ p$	Star.	Observer.
1872.	h. m. s.	m. s.	′ ″	s. ″	h. m. s.		° ′ ″			
April 1	9 51 1.1	+ 0 58.09	− 1 35.5	0.00−0.1	12 31 56.92	9.4733*n*	− 2 53 34.9	0.7623	*a*	H.
2	9 47 41.0	+ 0 6.93	+ 4 33.9	0.00+0.2	12 31 5.77	9.4788*n*	− 2 47 25.2	0.7615	*a*	H.

COMPARISON STARS.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.−O. B. J.
1872.	h. m. s.		h. m. s.	s.	° ′ ″	″			s. ″
April 1	9 8 4	*a*	12 30 57.86	+ 0.97	− 2 51 52.6	− 6.7	Schjellerup; star has p. m.? .	12.4	− 0.27+1.8
2	9 0 49	*a*	12 30 57.86	+ 0.98	− 2 51 52.6	− 6.7	Schjellerup	27.5	− 0.17+2.9

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(119).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\ \Delta\ p$	δ	$l.\ \Delta\ p$	Star.	Observer.
1872.	h. m. s.	m. s.	′ ″	s. ″	h. m. s.		° ′ ″			
April 10	11 22 17.0	+ 1 17.45	+ 3 50.3	0.00+0.2	13 18 1.31	9.3522*n*	— 8 40 27.4	0.8044	*a*	H.
11	10 55 35.4	+ 1 7.79	+ 5 22.0	−0.01+0.2	13 17 12.40	9.4304*n*	— 8 33 26.4	0.7995	*b*	H.
13	11 30 57.3	+ 0 5.33	+ 3 59.7	0.00+0.2	13 15 32.32	9.3113*n*	— 8 19 13.1	0.8038	*c*	H.
25	11 49 10.3	+ 1 30.07	+ 2 37.8	0.00+0.1	13 6 6.83	9.1836*n*	— 6 57 13.8	0.7976	*d*	H.
30	11 59 42.2	— 0 13.77	+ 5 41.6	0.00+0.2	13 2 53.14	9.1002*n*	— 6 26 14.9	0.7949	*e*	H.

COMPARISON STARS.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.—O.
1872.	h. m. s.		h. m. s.	s.	° ′ ″	″			
April 10	10 3 42	*a*	13 16 42.82	+ 1.04	— 8 44 10.5	— 7.4	Bessel, Lamont, and Schjellerup .	24.8	
11	9 33 9	*b*	13 16 3.58	+ 1.04	— 8 38 41.2	— 7.4	Lamont	21.7	
13	10 0 33	*c*	13 15 25.93	+ 1.06	— 8 23 5.6	— 7.4	Bessel	24.6	
25	9 31 32	*d*	13 4 35.68	+ 1.08	— 6 59 44.1	— 7.6	Bessel	9.3	
30	9 22 23	*e*	13 3 5.83	+ 1.08	— 6 31 49.2	— 7.5	Lamont	16.4	

PEITHO, (118).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\ \Delta\ p$	δ	$l.\ \Delta\ p$	Star.	Observer.
1872.	h. m. s.	m. s.	′ ″	s. ″	h. m. s.		° ′ ″			
April 29	10 51 35.1	— 0 26.29	— 1 37.1	0.00—0.1	11 34 54.44	8.9438	+ 10 30 38.2	0.6231	*a*	H.

COMPARISON STAR.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.—O.
1872.	h. m. s.		h. m. s.	s.	° ′ ″	″			
April 29	8 18 23	*a*	11 35 19.92	+ 0.81	+ 10 32 18.1	— 2.7	Lamont	16.5	

(121).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\ \Delta\ p$	δ	$l.\ \Delta\ p$	Star.	Observer.
1872.	h. m. s.	m. s.	′ ″	s. ″	h. m. s.		° ′ ″			
May 26	15 14 11.5	— 2 17.37	— 12 22.4	−0.01—0.8	16 10 9.30	9.070*n*	— 18 46 4.7	0.868	*a*	H.
31	15 39 10.3	+ 1 35.59	+ 0 10.1	0.00+0.0	16 6 18.33	8.758*n*	— 18 43 33.7	0.871		H.
June 8	16 19 17.0	— 1 18.62	— 0 55.0	0.00—0.1	16 0 21.32	8.605	— 18 40 8.5	0.871	*c*	H.
10	15 23 43.6	— 2 41.36	— 0 17.1	0.00—0.0	15 58 58.59	8.869	— 18 39 30.5	0.870	*c*	H.

COMPARISON STARS.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.—O.
1872.	h. m. s.		h. m. s.	s.	° ′ ″	″			
May 26	10 54 7	*a*	16 12 25.08	+ 1.60	— 18 33 35.1	— 6.4	Argelander	17.6	
31	10 59 22	*b*	16 4 41.10	+ 1.64	— 18 43 37.2	— 6.6	Argelander	18.6	
June 8	11 7 55	*c*	16 1 38.25	+ 1.69	— 18 39 6.6	— 6.8	Argelander	18.6	
10	10 4 39	*c*	16 1 38.25	+ 1.70	— 18 39 6.6	— 6.8	Argelander	12.4	

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GERDA, (122).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\ \Delta\ p$	δ	$l.\ \Delta\ p$	Star.	Observer.
1872.	h. m. s.	m. s.	′ ″	s. ″	h. m. s.		° ′ ″			
Sept. 3	20 49 59.4	+ 0 33.90	+ 11 2.5	0.00+0.5	21 25 21.06	8.860*n*	— 13 52 28.9	0.845	*a*	H.

COMPARISON STAR.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.—O.
1872.	h. m. s.		h. m. s.	s.	° ′ ″	″			
Sept. 3	9 55 49	*a*	21 24 44.65	+ 2.51	— 14 3 44.3	+ 12.4	. . . . .	16.5	

ALCESTE, (124).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\ \Delta\ p$	δ	$l.\ \Delta\ p$	Star.	Observer.
1872.	h. m. s.	m. s.	′ ″	s. ″	h. m. s.		° ′ ″			
Aug. 26	20 4 23.6	+ 2 7.50	+ 14 44.8	−0.02+0.6	22 18 59.37	9.410*n*	— 7 35 30.3	0.795	*a*	H.
30	21 2 30.0	— 1 13.18	— 9 3.1	0.00—0.4	22 15 38.73	9.163*n*	— 7 59 19.0	0.805	*a*	H.
31	20 31 15.9	— 0 58.15	+ 0 48.6	0.00+0.0	22 14 50.84	9.307*n*	— 8 5 5.9	0.803	*b*	H.
Sept. 1	19 39 13.1	— 1 45.01	— 4 47.2	+0.01—0.2	22 14 3.99	9.463*n*	— 8 10 41.9	0.795	*b*	H.
3	21 31 38.1	— 0 37.97	— 3 33.3	0.00—0.1	22 12 24.80	9.009*n*	— 8 22 43.0	0.809	*c*	H.
7	21 8 1.6	+ 0 53.98	— 4 19.1	0.00—0.2	22 9 22.00	9.090*n*	— 8 45 17.9	0.811	*d*	H.
14	22 30 40.1	+ 1 44.44	+ 2 52.5	0.00+0.1	22 4 30.98	8.725	— 9 22 32.8	0.818	*e*	H.
16	20 52 51.4	+ 0 33.72	— 6 39.1	0.00—0.2	22 3 20.25	9.149*n*	— 9 32 4.8	0.816	*e*	H.
19	19 38 59.1	+ 1 8.62	+ 2 27.4	0.00+0.2	22 1 41.33	9.435*n*	— 9 45 40.0	0.806	*f*	H.
20	19 46 15.5	+ 0 37.27	— 1 57.4	0.00—0.1	22 1 9.98	9.413*n*	— 9 50 5.1	0.808	*f*	H.
21	20 17 49.2	+ 0 6.81	— 6 18.4	0.00—0.2	22 0 39.51	9.306*n*	— 9 54 26.2	0.814	*f*	H.
24	20 34 59.7	— 2 2.51	— 7 28.1	0.00—0.3	21 59 17.08	9.225*n*	— 10 6 37.4	0.818	*g*	H.
27	20 41 33.3	— 3 44.49	— 1 56.2	0.00—0.1	21 58 9.09	9.186*n*	— 10 17 34.5	0.820	*h*	H.
Oct. 1	22 7 12.4	— 1 50.33	+ 0 23.0	0.00+0.0	21 56 57.94	8.320	— 10 30 27.1	0.825	*i*	H.
4	21 25 3.1	— 2 26.75	— 7 37.4	0.00—0.3	21 56 21.49	8.578*n*	— 10 38 27.9	0.826	*i*	H.
29	22 30 20.1	— 0 5.48	+ 6 3.8	0.00+0.2	21 59 59.94	8.791	— 10 55 39.0	0.828	*k*	H.
30	21 15 36.4	+ 0 20.21	+ 7 8.1	0.00+0.3	22 0 25.61	8.959*n*	— 10 54 34.7	0.827	*k*	H.
31	21 13 37.4	+ 0 48.29	+ 8 16.8	0.00+0.3	22 0 53.68	8.982*n*	— 10 53 26.1	0.826	*k*	H.

COMPARISON STARS.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.—O.
1872.	h. m. s.		h. m. s.	s.	° ′ ″	″			
Aug. 26	9 41 47	*a*	22 16 49.45	+ 2.44	— 7 50 27.8	+ 12.1	Bessel, Rumker, and Lamont . . .	19.7	
30	10 24 1	*a*	22 16 49.45	+ 2.46	— 7 50 27.8	+ 12.3	Bessel, Rumker, and Lamont . . .	18.6	
31	9 48 56	*b*	22 15 46.52	+ 2.47	— 8 6 6.8	+ 12.3	Bessel and Lamont	21.7	
Sept. 1	8 53 6	*b*	22 15 46.52	+ 2.47	— 8 6 6.8	+ 12.3	Bessel and Lamont	21.7	
3	10 27 22	*c*	22 13 0.29	+ 2.48	— 8 19 21.8	+ 12.2	Lamont and Schjellerup	18.6	
7	9 58 4	*d*	22 8 25.53	+ 2.49	— 8 41 10.7	+ 12.1	Bessel and Lamont	21.7	
14	10 52 58	*e*	22 2 44.05	+ 2.49	— 9 25 37.2	+ 11.8	Bessel and Washington Obs., (3, 5) .	10.5	
16	9 7 33	*e*	22 2 44.05	+ 2.48	— 9 25 37.2	+ 11.7	Bessel and Washington Obs., (3, 5) .	24.5	
19	7 42 5		22 0 30.24	+ 2.47	— 9 48 19.1	+ 11.5	Schjellerup and Washington Obs., (1, 4)	24.8	
20	7 45 25		22 0 30.24	+ 2.47	— 9 48 19.1	+ 11.5	Schjellerup and Washington Obs. . .	24.8	
21	8 12 57	*f*	22 0 30.24	+ 2.46	— 9 48 19.1	+ 11.5	Schjellerup and Washington Obs. . .	27.5	
24	8 18 17	*g*	22 1 17.14	+ 2.45	— 9 59 20.4	+ 11.4	Schjellerup	15.5	
27	8 13 2	*h*	22 1 51.15	+ 2.43	— 10 15 49.5	+ 11.3	Schjellerup	15.5	
Oct. 1	9 22 43	*i*	21 58 45.87	+ 2.40	— 10 31 1.1	+ 11.0	Bessel and Washington Obs., (3, 4) .	20.7	
4	8 28 53	*i*	21 58 45.87	+ 2.37	— 10 31 1.1	+ 10.9	Bessel and Washington Obs. . . .	6.2	
29	7 55 42	*k*	22 0 2.39	+ 2.10	— 11 1 48.8	+ 9.5	Bessel	28.5	
30	6 37 14	*k*	22 0 2.39	+ 2.08	— 11 1 48.8	+ 9.4	Bessel	10.5	
31	6 31 20	*k*	22 0 2.39	+ 2.07	— 11 1 48.8	+ 9.3	Bessel	21.7	

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ANGELINA, (64).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\Delta p$	δ	$l.\Delta p$	Star.	Observer.
1872. Oct. 31	h. m. s. 21 59 57.6	m. s. + 0 22.96	′ ″ + 3 26.5	s. ″ 0.00+0.1	h. m. s. 1 2 11.59	9.521*n*	° ′ ″ + 8 45 45.7	0.675	*a*	H.

COMPARISON STAR.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.—O. B. J.
1872. Oct. 31	h. m. s. 7 17 33	*a*	h. m. s. 1 1 45.92	s. + 2.71	° ′ ″ + 8 42 0.8	″ + 18.3	Bessel, Schjel., and Wash. Obs., (2, 3)	20.7	s. ″ — 0.04 — 4.3

SAPPHO, (80).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\Delta p$	δ	$l.\Delta p$	Star.	Observer.
1872. Dec. 23	h. m. s. 3 21 46.5	m. s. + 1 31.47	′ ″ + 4 13.2	s. ″ 0.00+0.1	h. m. s. 6 24 11.53	9.524*n*	° ′ ″ + 10 49 2.8	0.655	*a*	H.

COMPARISON STAR.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.—O. B. J.
1872. Dec. 23	h. m. s. 9 9 11	*a*	h. m. s. 6 22 36.40	s. + 3.66	° ′ ″ + 10 44 47.6	″ + 1.9	Lalande	15.5	s. ″ — 0.08 — 0.4

(128).

Date.	Sidereal Time.	$\Delta\alpha$	$\Delta\delta$	$\Delta\rho$	α	$l.\Delta p$	δ	$l.\Delta p$	Star.	Observer.
1872. Dec. 23	h. m. s. 1 12 48.9	m. s. — 0 25.63	′ ″ + 2 8.2	s. ″ 0.00+0.0	h. m. s. 3 57 24.92	9.507*n*	° ′ ″ + 19 49 38.1	0.536	*a*	H.

COMPARISON STAR.

Date.	Mean Time.	Star.	α 1872.	Reduction.	δ 1872.	Reduction.	Authority.	Comp.	C.—O.
1872. Dec. 23	h. m. s. 7 1 29	*a*	h. m. s. 3 57 47.00	s. + 3.55	° ′ ″ + 19 47 13.8	″ + 16.1	Bessel.		

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OCCULTATIONS, 1872.

Date.	Object.	Phase.	Chron. Time.	Corr. Chron.	Mean Time.	Obs.	Remarks.
1872.			h. m. s.	m. s.	h. m. s.		
Feb. 12	33 Ceti.	Immersion . .	5 21 50.0	— 0 45.5	7 51 31.3	H.	Wt.=2; clouds.
12	33 Ceti.	Immersion . .	7 54 34.5	— 0 1.6	7 54 32.9	T.	Observed with comet-seeker.
21	γ Cancri	Immersion . .	4 50 33.0	— 1 0.3	6 44 41.5	H.	Wt.=3.
21	γ Cancri	Emersion . .	5 13 50.0	— 1 0.3	7 7 54.7	H.	Wt.=2.
Mar. 18	Weisse VII, 864 .	Immersion . .	9 39 12.0	— 1 42.1	9 49 37.9	H.	Wt.=3.
18	B. A. C. 2514 . .	Immersion . .	10 0 17.0	— 1 42.1	10 10 39.5	H.	Very uncertain; haze.
Apr. 25	22 Ophiuchi . . .	Emersion . .	18 50 9.1	— 2 48.1	16 28 34.5	Sk.	A satisfactory observation.
Sept. 21	ω^2 Tauri	Immersion . .	1 17 20.1	— 0 52.9	13 10 46.3	Sk.	Wt.=5; good.
21	ω^2 Tauri	Emersion . .	2 9 52.7	— 0 52.9	14 3 10.3	Sk.	Wt.=5; very good.
21	53 Tauri	Immersion . .	2 55 4.3	— 0 52.9	14 48 14.5	Sk.	Wt.=5; good.
21	53 Tauri	Emersion . .	4 15 0.6	— 0 52.9	16 7 59.7	Sk.	Wt.=5; good.
24	37 Geminorum . .	Immersion . .	0 33 7.7	— 0 57.4	12 14 39.0	Sk.	Wt.=3.
24	37 Geminorum . .	Emersion . .	1 29 39.6	— 0 57.4	13 11 11.6	Sk.	Wt.=5.
Oct. 15	33 Ceti.	Immersion . .	20 58 54.5	— 1 39.1	7 17 55.2	Sk.	Wt.=4.
15	*f* Piscium . . .	Immersion . .	1 52 45.1	— 1 39.1	12 10 57.6	Sk.	Wt.=2.

OBSERVATIONS OF THE COMPANION OF SIRIUS, 1872.

Date.	P.	Δ	Wt.	Power.	No. Comp.	Observer.
1872.	°	″				
Feb. 23.3	65.9	. .	2	202	4	Hall.
Mar. 27.3	62.9	10.82	2.1	202	5.2	Hall.
27.3	62.5	. .	. .	202	5	Newcomb.
28.3	64.3	. .	3	202	2	Hall.
28.3	63.6	. .	. .	202	2	Skinner.
29.3	64.5	11.71	4.4	279	6.6	Hall.
Apr. 2.3	64.6	11.60	3.3	279	3.5	Hall.
2.3	57.0	. .	. .	279	4	Skinner.
2.3	. .	11.50	. .	279	.5	Newcomb.
5.3	64.1	11.28	2.2	279	5.2	Hall.
11.3	64.1	. .	. .	279	4	Skinner.
11.3	63.5	11.90	2.2	279	2.3	Hall.

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CORRECTIONS

TO THE

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES

OF THE

AMERICAN EPHEMERIS

GIVEN BY

INDIVIDUAL OBSERVATIONS OF STARS

WITH THE

TRANSIT CIRCLE.

1872.

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CORRECTIONS

TO THE

STAR-POSITIONS OF THE AMERICAN EPHEMERIS, ETC.

NOTE.—In order to obviate the necessity for reference to the American Ephemeris, immediately below the name of each star are given its mean right ascension and mean north polar distance for 1872.0, as given in that work.

α ANDROMEDÆ.

Right Ascension . . . 0 h. 1 m. 46.469 s.

North Polar Distance . 61° 36′ 58.″03

1872.			s.		″
Jan.	26	S.	+ 0.01	+	1.5
Feb.	1	E.	+ 0.05	+	0.8
	7	S.	+ 0.04	—	0.1
Mar.	1	F.	— 0.01	+	2.1
	5	F.	+ 0.03	+	0.4
	9	F.	+ 0.16	—	0.1
April	16	E.	— 0.06	+	1.3
	23	S.	— 0.09		. .
	24	E.	— 0.19		. .
May	30	Ha.	+ 0.01	+	2.0
Nov.	7	E.	+ 0.02		0.0
	23	E.	— 0.04	+	0.7
Dec.	7	S.	+ 0.04	+	1.3
Mean			— 0.002	+	0.09
Div., Flex., etc. .			. .	—	0.30

α ANDROMEDÆ, (Ref.)

1872.			s.		″
Oct.	31	F.	+ 0.24	+	3.7
Nov.	15	E.	+ 0.22	+	4.6
Mean			+ 0.230	+	4.15

γ PEGASI.

Right Ascension . . . 0 h. 6 m. 38.783 s.

North Polar Distance . 75° 31′ 40.″58

1872.			s.		″
Jan.	26	S.	+ 0.01	+	1.5
Feb.	1	E.	+ 0.02	+	0.4
Mar.	1	F.	+ 0.02	+	1.0
April	16	E.	— 0.10	+	0.6
	29	F.	— 0.09	+	1.0
May	3	F.	— 0.22	+	1.1
	30	Ha.	— 0.01	+	1.9
Nov.	4	F.	— 0.12	+	1.0
	7	E.	+ 0.05	+	0.2
	8	F.	— 0.03	+	0.6
	12	F.	+ 0.01	+	1.1
	20	F.	+ 0.05	+	1.5
Mean			— 0.034	+	0.99
Div., Flex., etc. .			. .	—	0.08

γ PEGASI, (Ref.)

1872.			s.		″
Nov.	15	E.	. .	+	0.4
Div., Flex., etc. .			. .	—	0.08

α CASSIOPEÆ.

Right Ascension . . . 0 h. 33 m. 15.409 s.

North Polar Distance . 34° 9′ 54.″35

1872.			s.		″
July	5	S.	— 0.03	+	1.7
	8	S.	+ 0.05	+	1.2
Mean			+ 0.010	+	1.45
Div., Flex., etc. .			. .	—	0.26

β CETI.

Right Ascension . . . 0 h. 37 m. 9.767 s.

North Polar Distance . 108° 41′ 22.″05

1872.			s.		″
Feb.	1	E.	+ 0.11	—	1.5
	22	F.	+ 0.17	+	1.9
April	29	F.	+ 0.01	+	0.7
May	2	E.	— 0.01	—	1.1
	30	Ha.	+ 0.06	+	0.2
June	26	Ha.	+ 0.19		. .
July	5	S.	+ 0.07	+	2.8
Oct.	31	F.	+ 0.06	+	5.3
Nov.	8	F.	+ 0.05	+	1.3
	15	E.	+ 0.17	—	0.4
Mean			+ 0.088	+	1.02
Div., Flex., etc. .			. .	—	0.20

21 CASSIOPEÆ, S. P.

Right Ascension . . . 0 h. 37 m. 14.031 s.

North Polar Distance . 344° 17′ 14.″57

1872.			s.		″
April	21	E.	— 0.19	+	0.5
	22	F.	+ 0.41	+	1.6
	23	Ha.	— 0.73	+	1.3
	25	E.	+ 0.50	—	1.5
Mean			+ 0.372	+	0.48
Div., Flex., etc. .			. .	+	0.33

ε PISCIUM.

Right Ascension . . . 0 h. 56 m. 18.096 s.

North Polar Distance . 82° 47′ 57.″96

1872.			s.		″
Jan.	26	S.	— 0.01	+	0.6
Feb.	1	E.	. .	+	0.1
June	26	Ha.	+ 0.10		. .
July	5	S.	+ 0.04	+	1.5

ε PISCIUM—Continued.

1872.			s.		″
Oct.	31	F.	0.00	+	0.2
Nov.	7	E.	+ 0.07	+	0.8
	8	F.	— 0.07	+	1.0
	12	F.	— 0.02	+	2.7
	23	E.	— 0.05	+	0.9
Dec.	5	E.	+ 0.07	+	0.6
	9	E.	+ 0.09	—	0.1
Mean			+ 0.022	+	0.83
Div., Flex., etc. .			. .	—	0.32

POLARIS.

Right Ascension . . . 1 h. 11 m. 58.231 s.

North Polar Distance . 1° 22′ 23.″37

1872.			s.		″
Jan.	16	E.	. .	—	3.1
	26	S.	+ 2.05	—	1.3
	30	S.	. .	—	0.6
Feb.	1	E.	+ 1.21	—	1.6
	7	S.	. .	—	0.6
	22	F.	— 2.58	—	0.1
	26	F.	— 3.51		. .
	27	S.	+ 0.31	—	1.4
Mar.	1	F.	. .	—	0.5
	5	F.	+ 0.38	—	1.3
	6	S.	— 1.96		. .
	16	E.	+ 1.25	—	0.1
	21	E.	+ 1.13	+	1.0
April	2	E.	+ 0.02	—	0.4
	4	Ha.	+ 0.18	—	0.9
	5	E.	— 4.75	+	0.8
	9	F.	— 1.45	+	1.3
	16	E.	. .	+	1.2
	23	S.	— 1.88		. .
	29	F.	+ 2.50	—	1.5
May	1	S.	— 0.23	—	0.5
	2	E.	. .	—	1.0
	3	F.	— 2.81	—	0.6
	6	E.	— 4.41	—	0.8
	7	F.	— 1.41	—	0.3
	10	E.	. .	—	1.0
	27	F.	— 3.71	—	1.4
	30	Ha.	— 0.63	—	0.6
	31	E.	— 0.89	—	1.6
June	30	S.	— 4.25	—	0.9
July	4	S.	— 3.51	—	1.0
	5	S.	— 1.77	—	1.2
Sept.	18	F.	. .	—	0.6
Oct.	31	F.	. .	—	0.6
Nov.	4	F.	— 2.19	—	2.6
	7	E.	. .	—	2.6
	8	F.	+ 0.52	—	0.7
	12	F.	+ 0.18	—	0.7
	15	E.	+ 4.41	—	1.2
	20	F.	+ 0.86	—	1.5
	23	E.	+ 0.97	—	1.2
	26	S.	— 0.76		. .
	27	E.	. .	—	0.8
	28	F.	+ 1.02	—	0.7

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POLARIS—Continued.

1872.			s.		″
Dec.	5	E.	. .	—	1.4
	9	E.	— 0.67	—	0.7
Mean	. . . .		— 0.776	—	0.84
Div., Flex., etc.	.		. .	—	0.33

POLARIS, S. P.

	h.	m.	s.
Right Ascension. . .	1	11	58.231
North Polar Distance .	358°	37′	36″.63

1872.			s.		″
Jan.	31	Ha.	. .	+	0.8
Feb.	25	E.	. .	+	0.3
	26	F.	+ 0.10	—	0.3
	27	S.	— 0.45	+	0.2
April	1	F.	— 2.51	+	0.8
	4	Ha.	+ 2.46	+	1.8
	5	E.	— 4.80	+	1.1
	10	F.	+ 1.37	+	0.4
	11	S.	— 2.89		. .
	13	E.	+ 2.87	—	0.2
	16	S.	+ 2.86		. .
	19	Ha.	. .	+	0.8
	21	E.	. .	+	0.3
	22	F.	. .	+	0.2
	23	Ha.	. .	—	0.6
	24	S.	— 2.11	+	2.6
	25	E.	. .	—	0.6
	29	E.	. .	+	1.6
	30	F.	+ 3.51	+	0.9
May	2	S.	+ 0.03		. .
	4	F.	— 2.67	+	2.0
	6	S.	— 2.43	—	0.2
	7	E.	— 4.27	+	0.1
	8	F.	— 1.37		. .
	10	S.	. .	+	0.4
	16	S.	. .	+	0.2
	19	E.	. .	—	0.3
	20	F.	. .	—	0.4
	21	Ha.	. .	+	1.0
	23	S.	— 0.65	+	0.9
	27	E.	. .	—	0.3
	28	F.	4.08	+	1.5
	30	Ha.	— 0.60		. .
	31	E.	— 0.94	+	0.7
June	4	E.	. .	—	0.5
	6	Ha.	. .	+	1.2
	8	E.	. .	—	0.2
	10	Ha.	. .	+	0.9
	12	E.	. .	+	0.7
	13	F.	. .	—	0.8
July	1	S.	— 3.56	—	0.8
	5	S.	— 3.17		. .
Aug.	11	E.	. .	—	0.9
	19	E.	. .	+	0.6
Sept.	16	S.	. .	—	0.8
	20	S.	. .	+	0.5
	24	S.	. .	—	1.6
Oct.	1	S.	. .	+	0.2
	2	E.	. .	+	0.1
	10	E.	. .	+	0.9
	18	S.	. .	+	0.6
	26	E.	. .	+	0.2
	31	S.	. .	—	0.1
Nov.	3	F.	. .	+	0.6
	7	F.	+ 0.31	+	0.4
	18	E.	+ 0.10	+	1.2
	22	E.	+ 0.89	+	0.7
	26	S.	— 5.39	—	0.4
Mean	. . . .		— 1.053	+	0.36
Div., Flex., etc.	.		. .	—	0.16

θ^1 CETI.

	h.	m.	s.
Right Ascension. . .	1	17	37.539
North Polar Distance .	98°	50′	39″.13

1872.			s.		″
Feb.	1	E.	+ 0.03	+	0.8
June	26	Ha.	+ 0.12		. .
	27	S.	— 0.02		. .
Sept.	18	F.	— 0.02	+	1.7
Oct.	31	F.	+ 0.05	+	2.9
Nov.	4	F.	— 0.10	+	2.8
	7	E.	+ 0.05	+	2.2
	8	F.	+ 0.01	+	2.5
	20	F.	+ 0.01		. .
	23	E.	+ 0.05	+	1.7
Dec.	9	E.	+ 0.05	+	1.3
Mean	. . . .		+ 0.021	+	1.99
Div., Flex., etc.	.		. .	—	0.45

38 CASSIOPEÆ, S. P.

	h.	m.	s.
Right Ascension . .	1	21	44.348
North Polar Distance .	339°	36′	16″.76

1872.			s.		″
April	19	Ha.	+ 0.25	+	1.2
Div., Flex., etc.	.		. .	+	0.40

η PISCIUM.

	h.	m.	s.
Right Ascension. . .	1	24	38.125
North Polar Distance .	75°	18′	52″.35

1872.			s.		″
Jan.	16	E.	+ 0.10	—	0.2
Oct.	31	F.	+ 0.07	+	2.3
Nov.	4	F.	+ 0.12	+	1.5
	7	E.	+ 0.11	+	0.8
	8	F.	+ 0.14	+	2.3
	12	F.	+ 0.03	+	2.0
	15	E.	+ 0.11		0.0
	20	F.	— 0.03	+	4.2
	23	E.	+ 0.13	+	1.5
	26	S.	+ 0.07	+	0.7
	27	E.	+ 0.07	+	0.4
	28	F.	+ 0.11	+	1.7
Dec.	5	E.	+ 0.14	+	1.5
Mean	. . . .		+ 0.090	+	1.44
Div., Flex., etc.	.		. .	—	0.07

o PISCIUM.

	h.	m.	s.
Right Ascension. . .	1	38	38.234
North Polar Distance .	81°	29′	14″.40

1872.			s.		″
Jan.	10	S.	— 0.02	+	0.4
	16	E.	— 0.06	+	2.4
	26	S.	+ 0.02	—	0.4
July	4	S.	— 0.03	—	0.4
Nov.	7	E.	— 0.10	+	0.2
	15	E.	— 0.07	+	1.1
	23	E.	0.00	+	0.8
	27	E.	— 0.05	—	0.3
Dec.	5	E.	— 0.03	+	0.2
	9	E.	— 0.08	+	0.3
Mean	. . . .		— 0.042	+	0.43
Div., Flex., etc.	.		. .	—	0.28

β ARIETIS.

	h.	m.	s.
Right Ascension. . .	1	47	34.335
North Polar Distance .	69°	49′	6″.35

1872.			s.		″
Jan.	10	S.	+ 0.01		. .
	16	E.	+ 0.01	+	1.8

β ARIETIS—Continued.

1872.			s.		″
Mar.	6	S.	— 0.03		. .
April	2	E.	— 0.03	+	3.1
May	7	F.	+ 0.03	+	1.2
	10	E.	+ 0.06	—	1.4
	26	E.	0.00		. .
	27	F.	+ 0.04	+	0.3
	30	E.	— 0.11	—	1.5
	31	E.	— 0.04	+	0.6
June	30	S.	+ 0.02		0.0
July	4	S.	— 0.06	—	0.5
	5	S.	+ 0.02	+	2.0
Sept.	18	F.	+ 0.06	+	1.8
Oct.	16	S.	— 0.01	+	0.9
Nov.	12	F.	+ 0.03	+	1.5
	15	E.	— 0.03	—	0.8
	26	S.	+ 0.07	+	0.6
	28	F.	+ 0.07	+	1.4
Dec.	9	E.	— 0.02	+	1.1
Mean	. . . .		+ 0.004	+	0.71
Div., Flex., etc.	.		. .	—	0.05

50 CASSIOPEÆ.

	h.	m.	s.
Right Ascension. . .	1	52	32.927
North Polar Distance .	18°	12′	0″.26

1872.			s.		″
Nov.	26	S.	+ 0.05	—	0.9
Div., Flex., etc.	.		. .	—	0.29

50 CASSIOPEÆ, S. P.

	h.	m.	s.
Right Ascension . .	1	52	32.927
North Polar Distance .	341°	47′	59″.74

1872.			s.		″
June	6	Ha.	+ 0.14	+	1.8
	12	E.	+ 0.03	+	0.1
Mean	. . . .		+ 0.085	+	1.45
Div., Flex., etc.	.		. .	+	0.33

α ARIETIS.

	h.	m.	s.
Right Ascension. . .	1	59	57.687
North Polar Distance .	67°	8′	37″.71

1872.			s.		″
Jan.	10	S.	— 0.04		0.0
	16	E.	0.00	—	0.1
	17	F.	+ 0.01	+	0.3
Feb.	27	S.	— 0.10	+	1.4
Mar.	6	S.	+ 0.03		. .
	16	E.	+ 0.10	+	2.0
	21	E.	— 0.03	+	0.7
	28	E.	+ 0.04	+	3.1
April	2	E.	— 0.05	+	3.0
	5	E.	+ 0.03	+	0.7
May	2	E.	— 0.01	—	0.3
	10	E.	+ 0.01	+	0.7
	13	S.	— 0.03	+	0.8
	19	F.	+ 0.01	—	1.2
	27	F.	— 0.05	+	1.7
	30	E.	— 0.06	—	1.4
	31	E.	— 0.04	+	1.4
June	30	S.	+ 0.01	—	0.3
July	4	S.	— 0.06	—	0.6
	5	S.	— 0.01	+	0.7
Sept.	18	F.	— 0.02	+	1.4
Oct.	16	S.	+ 0.03	+	0.6
Nov.	28	F.	0.00	—	0.8
Mean	. . . .		— 0.010	+	0.60
Div., Flex., etc.	.		. .	—	0.02

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ξ^1 Ceti.

	h.	m.	s.
Right Ascension. . .	2	6	13.002

	°	′	″
North Polar Distance .	81	45	17.48

1872.			s.		″
Jan.	10	S.	+ 0.11	—	0.5
	17	F.	+ 0.16		. .
Mean			+ 0.135		. .
Div., Flex., etc. .			. .	—	0.29

ι Cassiopeæ.

	h.	m.	s.
Right Ascension. . .	2	18	32.831

	°	′	″
North Polar Distance .	23	10	31.23

1872.			s.		″
Jan.	9	F.	— 0.65	—	0.8
Div., Flex., etc. .			. .	—	0.21

ι Cassiopeæ, S. P.

	h.	m.	s.
Right Ascension . .	2	18	32.831

	°	′	″
North Polar Distance .	336	49	28.77

1872.			s.		″
May	6	S.	+ 0.15	+	1.6
	16	S.	+ 0.46	+	0.9
June	26	Ha.	+ 0.08	+	1.0
Mean			+ 0.230	+	1.12
Div., Flex., etc. .			. .	+	0.44

γ Ceti.

	h.	m.	s.
Right Ascension. . .	2	36	40.189

	°	′	″
North Polar Distance .	87	18	17.46

1872.			s.		″
Jan.	9	F.	+ 0.01	+	2.1
	12	E.	+ 0.04	+	1.3
Mean			+ 0.025	+	1.70
Div., Flex., etc. .			. .	—	0.41

α Ceti.

	h.	m.	s.
Right Ascension. . .	2	55	35.395

	°	′	″
North Polar Distance .	86	24	50.14

1872.			s.		″
Jan.	17	F.	+ 0.01		0.0
April	2	E.	+ 0.09	+	1.5
	5	E.	+ 0.11		0.0
May	27	F.	+ 0.06	+	0.4
	30	E.	+ 0.01	—	1.0
	31	F.	— 0.01	—	0.1
June	10	S.	— 0.02	—	1.1
	11	E.	— 0.10	—	0.6
	12	F.	— 0.05	—	2.5
Dec.	9	E.	+ 0.02	—	1.7
Mean			+ 0.012	—	0.51
Div., Flex., etc. .			. .	—	0.41

48 Cephei.

	h.	m.	s.
Right Ascension. . .	3	4	9.912

	°	′	″
North Polar Distance .	12	44	23.32

1872.			s.		″
Jan.	9	F.	+ 0.24	—	0.6
	12	E.	+ 0.32	—	0.1
Mean			+ 0.280	—	0.35
Div., Flex., etc. .			. .	—	0.30

48 Cephei, S. P.

	h.	m.	s.
Right Ascension. . .	3	4	9.912

	°	′	″
North Polar Distance	347	15	36.68

1872.			s.		″
May	10	S.	+ 0.39	+	0.2
June	18	Ha.	+ 0.13	+	2.5
	28	E.	+ 0.41	+	2.7
Mean			+ 0.310	+	1.80
Div., Flex., etc. .			. .	+	0.22

ζ Arietis.

	h.	m.	s.
Right Ascension. . .	3	7	32.832

	°	′	″
North Polar Distance .	69	25	52.76

1872.			s.		″
Jan.	9	F.	— 0.08	+	0.9
	12	E.	+ 0.03		. .
	17	F.	— 0.08	+	1.5
Oct.	16	S.	— 0.03	+	0.4
Dec.	2	F.	+ 0.01	+	0.6
	4	S.	+ 0.05	—	0.1
	13	E.	+ 0.03	+	1.3
Mean			— 0.010	+	0.77
Div., Flex., etc. .			. .	—	0.03

α Persei.

	h.	m.	s.
Right Ascension. . .	3	15	11.622

	°	′	″
North Polar Distance .	40	35	48.54

1872.			s.		″
Jan.	9	F.	+ 0.42	—	2.2
	12	E.	+ 0.02	—	0.4
April	5	E.	+ 0.07	+	1.6
	25	E.	— 0.07	+	0.5
May	31	F.	+ 0.11	+	0.7
June	11	E.	— 0.14	—	0.5
	30	S.	+ 0.10	—	0.9
Dec.	13	E.	— 0.04	—	0.9
Mean			+ 0.061	—	0.39
Div., Flex., etc. .			. .	—	0.12

δ Persei.

	h.	m.	s.
Right Ascension. . .	3	33	49.051

	°	′	″
North Polar Distance .	42	37	27.65

1872.			s.		″
Jan.	9	F.	+ 0.30	—	1.0
	12	E.	+ 0.05	—	1.3
May	31	F.	+ 0.24	—	0.4
June	11	E.	+ 0.09	—	2.2
Mean			+ 0.170	—	1.22
Div., Flex., etc. .			. .	—	0.18

η Tauri.

	h.	m.	s.
Right Ascension. . .	3	39	52.701

	°	′	″
North Polar Distance .	66	17	33.44

1872.			s.		″
Jan.	12	E.	— 0.02	+	0.3
	17	F.	— 0.02	—	0.8
	22	S.	+ 0.08		. .
	30	S.	+ 0.09		. .
April	10	F.	+ 0.11	+	1.1
May	30	E.	+ 0.18		. .
	31	F.	+ 0.01	+	0.1
Nov.	26	S.	+ 0.09	—	0.8
Dec.	4	S.	+ 0.05	—	0.9
	13	E.	+ 0.10	+	0.7
	22	F.	— 0.13	—	0.5
	23	E.	+ 0.01	—	0.8
Mean			+ 0.046	—	0.18
Div., Flex., etc. .			. .	—	0.06

ζ Persei.

	h.	m.	s.
Right Ascension. . .	3	46	5.384

	°	′	″
North Polar Distance .	58	29	55.24

1871.			s.		″
Jan.	12	E.	— 0.11	+	1.2
	17	F.	— 0.03	—	0.1
Feb.	15	S.	— 0.06	—	0.2
June	11	E.	— 0.09	—	0.6
Mean			— 0.072	+	0.08
Div., Flex., etc. .			. .	—	0.33

γ^1 Eridani.

	h.	m.	s.
Right Ascension . .	3	52	3.474

	°	′	″
North Polar Distance .	103	52	26.25

1872.			s.		″
Jan.	12	E.	+ 0.12	+	1.9
April	10	F.	+ 0.13	+	2.1
Aug.	25	Ha.	+ 0.14	+	2.3
Nov.	28	F.	+ 0.02	+	2.6
Dec.	2	F.	+ 0.04	+	1.0
	5	E.	0.00	+	1.7
	10	F.	— 0.05	+	2.3
	13	E.	0.00	+	2.8
Mean			+ 0.050	+	2.09
Div., Flex., etc. .			. .	—	0.29

γ Tauri.

	h.	m.	s.
Right Ascension. . .	4	12	30.647

	°	′	″
North Polar Distance .	74	41	0.05

1872.			s.		″
Jan.	12	E.	+ 0.01	+	2.6
Aug.	25	Ha.	— 0.03	+	1.6
Nov.	28	F.	— 0.04	+	1.1
Dec.	10	F.	— 0.10	—	0.1
	12	S.	+ 0.09		. .
	13	E.	+ 0.07	+	0.2
	22	F.	+ 0.04	+	0.4
	23	E.	+ 0.04	+	1.2
	24	S.	+ 0.05		. .
Mean			+ 0.014	+	0.10
Div., Flex., etc. .			. .	—	0.05

ε Tauri.

	h.	m.	s.
Right Ascension. . .	4	21	8.646

	°	′	″
North Polar Distance .	71	6	19.42

1872.			s.		″
Jan.	12	E.	+ 0.03	+	2.0
	17	F.	— 0.01	+	0.8
	22	S.	+ 0.07	+	2,1
Aug.	25	Ha.	+ 0.02	+	0.4
Oct.	9	S.	+ 0.07	+	0.5
	16	S.	— 0.02	+	0.1
Nov.	16	F.	. .	+	1.9
Mean			+ 0.027	+	1.11
Div., Flex., etc. .			. .	—	0.10

α Tauri.

	h.	m.	s.
Right Ascension. . .	4	28	34.663

	°	′	″
North Polar Distance .	73	44	59.90

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α Tauri—Continued.

1872.				s.		″
Jan.	5	F.	—	0.05	+	1.0
	12	E.		0.00	+	2.8
	17	F.	—	0.05	+	1.1
	22	S.	—	0.02	+	1.7
Feb.	15	S.	+	0.03	+	1.2
	16	Ha.	—	0.10	+	1.9
Apr.	4	Ha.	+	0.03	+	3.0
	25	E.	—	0.10	+	2.8
	30	F.	+	0.01	+	3.8
May	2	S.	—	0.04	+	2.5
	3	E.	+	0.02	+	1.4
	4	F.	—	0.08	+	2.5
	7	E.	—	0.14	+	3.3
	8	F.	—	0.08	+	0.6
	11	E.	—	0.05	+	1.7
	14	S.	+	0.03		. .
June	11	E.	+	0.01	+	1.9
	12	F.	—	0.12	+	1.1
	20	F.	—	0.02	+	1.3
	26	S.		. .	+	0.9
	27	E.	—	0.10	+	1.0
	30	S.	—	0.01	+	1.4
July	4	S.		0.00	+	0.6
	5	E.	—	0.19	+	0.5
	17	E.	—	0.04	+	0.8
Aug.	25	Ha.	—	0.09	+	1.7
Oct.	9	S.	+	0.03	+	0.8
	16	S.	+	0.01	+	1.1
Nov.	26	S.	—	0.01	+	0.5
Dec.	4	S.	—	0.05	+	0.7
	5	E.	—	0.02	+	0.9
	12	S.	—	0.10	+	1.9
	23	E.	—	0.01	+	1.4
	24	S.		0.00	+	0.4
Mean			—	0.039	+	1.53
Div., Flex., etc. .				. .	—	0.04

9 Camelopardalis, S. P.

	h.	m.	s
Right Ascension. . .	4	41	20.270
	°	′	″
North Polar Distance .	336	7	17.06

1872.				s.		″
July	20	Ha.	—	0.12	+	0.3
	24	Ha.	+	0.15		. .
Mean			+	0.015	+	0.3
Div., Flex., etc. .				. .	+	0.41

9 Camelopardalis, (Ref.)

1872.				″
Oct.	16	S.	. .	+ 0.4

ι Aurigæ.

	h.	m.	s.
Right Ascension. . .	4	48	39.612
	°	′	″
North Polar Distance .	57	2	20.27

1872.				s.		″
Jan.	5	F.	+	0.02	+	0.1
Feb.	16	Ha.	—	0.04	+	0.6
April	22	F.	—	0.06	+	3.6
June	27	E.	—	0.04	+	0.8
July	1	E.		0.00	—	0.5
	2	F.	—	0.04	—	0.5
	4	S.	—	0.02	+	0.3
	5	E.	—	0.04	+	0.2
	17	E.	—	0.05	—	0.7
Oct.	9	S.	+	0.07	+	0.1
Nov.	16	F.	—	0.06	+	1.3
Dec.	2	F.		0.00		0.0
	6	F.	—	0.02	—	1.5
Mean			—	0.018	+	0.29
Div., Flex., etc. .				. .	—	0.32

11 Orionis.

	h.	m.	s.
Right Ascension. . .	4	57	15.423
	°	′	″
North Polar Distance .	74	46	34.44

1872.				s.		″
Jan.	5	F.	—	0.06	+	0.3
	12	E.	—	0.05	+	2.0
	22	S.	—	0.05		. .
Feb.	16	Ha.	—	0.08	+	0.5
Nov.	16	F.	—	0.11		. .
Dec.	10	F.	—	0.17	+	0.6
	13	E.	—	0.06	+	1.4
	23	E.	—	0.12	+	1.2
Mean			—	0.088	+	1.00
Div., Flex., etc. .				. .	—	0.05

α Aurigæ.

	h.	m.	s.
Right Ascension. . .	5	7	14.175
	°	′	″
North Polar Distance .	44	8	6.67

1872.				s.		″
Jan.	5	F.	—	0.03	—	2.1
	12	E.	—	0.16	—	0.3
April	4	Ha.	+	0.04	—	0.8
May	3	E.	+	0.01	—	1.0
	4	F.	—	0.04	—	1.0
July	2	F.	—	0.19	+	0.3
	5	E.	—	0.01	—	1.3
	17	E.	+	0.12	—	2.1
Dec.	22	F.	—	0.09		. .
Mean			—	0.039	—	1.04
Div., Flex., etc. .				. .	—	0.21

β Orionis.

	h.	m.	s.
Right Ascension. . .	5	8	23.217
	°	′	″
North Polar Distance .	98	21	4.94

1872.				s.		″
Jan.	5	F.	—	0.05	+	0.8
	12	E.	—	0.03	+	2.3
April	4	Ha.	+	0.06	+	0.2
	22	F.	—	0.06	+	2.9
	25	E.	+	0.03	+	1.2
May	3	E.	+	0.02	—	0.6
	7	E.	—	0.05	+	2.7
	11	E.	—	0.05		0.0
	14	S.	—	0.01	+	1.3
June	20	F.		0.00		0.0
	26	S.	+	0.04	+	0.1
	27	E.	+	0.04		0.0
	30	S.	+	0.05	+	0.8
July	1	E.	—	0.06	—	0.2
	2	F.	—	0.02	+	0.3
	5	E.	—	0.03	—	1.3
	17	E.	—	0.05	—	1.1
Nov.	16	F.	+	0.01		. .
Dec.	2	F.	—	0.02	+	0.8
	5	E.	—	0.05	—	0.2
	10	F.	+	0.04	+	0.6
	22	F.	+	0.10	+	0.7
Mean			—	0.004	+	0.54
Div., Flex., etc. .				. .	—	0.46

β Orionis, (Ref.)

1872.				″
Oct.	16	S.	. .	+ 0.3

β Tauri.

	h.	m.	s.
Right Ascension. . .	5	18	12.088
	°	′	″
North Polar Distance .	61	30	11.61

1872.				s.		″
Jan.	5	F.	+	0.08	+	1.0
	12	E.	—	0.06	+	0.9
Feb.	7	S.	—	0.02	+	0.8
April	4	Ha.		0.00		0.0
	22	F.	—	0.15	+	1.3
	25	E.	—	0.04	+	1.0
May	3	E.	+	0.02	+	0.1
	7	E.	—	0.11	+	1.5
	8	F.	+	0.02	—	0.5
	11	E.	+	0.06	+	0.1
June	20	F.	+	0.07	+	1.8
	27	E.		0.00	+	0.4
July	1	E.	—	0.02	—	0.2
	2	F.		0.00	—	0.6
	5	E.	+	0.04		0.0
	8	S.	—	0.07	—	0.1
	17	E.	+	0.02	—	1.0
Dec.	10	F.	—	0.08	+	0.1
Mean			—	0.013	+	0.36
Div., Flex., etc. .				. .	—	0.09

Groombridge 966.

	h.	m.	s.
Right Ascension. . .	5	22	37.655
	°	′	″
North Polar Distance .	15	2	48.12

			s.		″
Jan.	12	E.	+	0.07	— 0.8
Div., Flex., etc. .				. .	— 0.30

δ Orionis.

	h.	m.	s.
Right Ascension. . .	5	25	28.102
	°	′	″
North Polar Distance .	90	23	45.63

1872.				s.		″
Jan.	5	F.	+	0.06	+	0.2
	12	E.	—	0.02	+	1.3
April	25	E.	—	0.03	+	0.9
May	4	F.	—	0.04	+	0.7
	7	E.	—	0.09	+	2.1
	8	F.	+	0.05	—	0.3
	11	E.	—	0.12	—	0.6
July	1	E.	—	0.05	—	1.4
	2	F.	—	0.06		. .
	5	E.	—	0.01	+	1.0
	17	E.	—	0.02	—	0.9
Nov.	16	F.	—	0.07	—	0.6
Mean			—	0.033	+	0.22
Div., Flex., etc. .				. .	—	0.43

α Leporis.

	h.	m.	s.
Right Ascension. . .	5	27	5.175
	°	′	″
North Polar Distance	107	54	55.83

1872.				s.		″
Jan.	5	F.		0.00	+	0.5
Div., Flex., etc. .				. .	—	0.22

ε Orionis.

	h.	m.	s.
Right Ascension. . .	5	29	43.138
	°	′	″
North Polar Distance .	91	17	8.40

1872.				s.		″
Jan.	12	E.	+	0.11	+	2.3
Feb.	5	E.	+	0.18	+	0.7
Mar.	16	E.	—	0.14	+	2.1

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ε Orionis—Continued.

1872.				s.		″
April	25	E.	+	0.03	+	2.3
May	7	E.	—	0.04	+	2.1
	8	F.	—	0.09	+	1.4
	11	E.	—	0.01	+	0.4
	20	F.	+	0.07	+	1.8
July	1	E.	—	0.08	+	0.5
	5	E.	+	0.02	+	1.3
	17	E.	+	0.03	—	2.2
	18	F.	+	0.08	+	1.3
	21	E.	+	0.01	+	1.4
Dec.	5	E.	—	0.05	—	1.2
Mean			+	0.009	+	1.01
Div., Flex., etc.				. .	—	0.49

α Columbæ.

	h.	m.	s.
Right Ascension. . .	5	35	0.924
North Polar Distance	124°	8′	36.″66

1872.				s.		″
Jan.	12	E.	—	0.04	+	3.1
Mar.	16	E.	—	0.08	+	2.4
Oct.	9	S.	+	0.04	+	0.6
Mean			—	0.027	+	2.03
Div., Flex., etc.				. .	+	0.04

α Orionis.

	h.	m.	s.
Right Ascension. . .	5	48	14.562
North Polar Distance .	82°	37′	8.″17

1872.				s.		″
Jan.	5	F.	+	0.01	+	1.4
	12	E.	—	0.03	+	1.7
Feb.	5	E.	+	0.08	+	1.6
	7	S.	—	0.07	+	1.0
Mar.	16	E.	—	0.05	+	2.2
May	7	E.	—	0.05	+	4.0
	8	F.	—	0.06	+	0.6
	11	E.	—	0.03	+	1.6
	20	F.	+	0.08		0.0
	23	S.	—	0.13	—	0.7
July	2	F.	—	0.01		. .
	5	E.	—	0.08	+	1.2
	18	F.	+	0.07	+	0.9
	21	E.	+	0.01	—	0.6
Dec.	13	E.	+	0.04	+	0.4
	24	S.	—	0.08	+	0.3
Mean			—	0.019	+	1.04
Div., Flex., etc.				. .	—	0.31

22 Camelopardalis.

	h.	m.	s.
Right Ascension. . .	6	4	44.077
North Polar Distance .	20°	38′	22.″80

1872.				s.		″
Jan.	5	F.	+	0.20	+	0.1
	12	E.	+	0.47	+	0.9
Mean			+	0.335	+	0.50
Div., Flex., etc.				. .	—	0.26

μ Geminorum.

	h.	m.	s.
Right Ascension. . .	6	15	13.028
North Polar Distance .	67°	25′	22.″87

1872.				s.		″
Feb.	5	E.	—	0.30		. .
	27	S.	+	0.01	+	0.7

μ Geminorum—Continued.

1872.				s.		″
Mar.	18	S.	—	0.04	+	1.4
Dec.	6	F.	+	0.08	—	0.7
	13	E.	—	0.07	+	0.3
Mean			—	0.064	+	0.42
Div., Flex., etc.				. .	—	0.02

γ Geminorum.

	h.	m.	s.
Right Ascension. . .	6	30	19.054
North Polar Distance .	73°	29′	36.″89

1872.				s.		″
Jan.	17	F.	—	0.07	+	5.3
Feb.	5	E.	—	0.15	—	1.2
	7	S.	—	0.02	+	1.0
	19	S.	—	0.09	+	2.6
	20	Ha.	—	0.03	+	1.7
	23	S.	—	0.04	+	1.6
Mar.	12	E.	—	0.14	+	1.2
	16	E.	—	0.02	+	1.3
	28	E.	—	0.10	+	2.2
April	13	E.	—	0.07		0.0
May	11	E.	—	0.03	+	0.1
	20	F.	+	0.03	—	0.4
June	13	F.	+	0.03	+	1.0
July	18	F.	+	0.12	+	1.4
	21	E.	—	0.01	+	0.9
Aug.	2	E.	—	0.15		0.0
	13	E.	—	0.14		0.0
Dec.	2	F.	—	0.13	—	0.4
	13	E.	—	0.10	+	1.0
Mean			—	0.058	+	1.02
Div., Flex., etc.				. .	—	0.04

α Canis Majoris.

	h.	m.	s.
Right Ascension. . .	6	39	30.419
North Polar Distance	106°	32′	31.″67

1872.				s.		″
Mar.	16	E.		. .	+	1.7
	20	F.	—	0.07	+	1.4
April	13	E.	—	0.05	—	0.7
	14	F.		0.00	+	1.4
May	11	E.	—	0.07	+	0.7
July	18	F.		0.00	+	1.7
	21	E.	—	0.05	+	0.9
	29	E.	—	0.06	+	1.3
Aug.	2	E.	—	0.08	+	0.2
	6	E.	+	0.14	—	1.9
	13	E.	—	0.03	—	1.0
Mean			—	0.027	+	0.52
Div., Flex., etc.				. .	—	0.24

51 Cephei.

	h.	m.	s.
Right Ascension. . .	6	39	43.629
North Polar Distance .	2°	45′	44.″87

1872.				s.		″
Jan.	5	F.	—	1.68	—	1.2
	17	F.	—	0.27	—	1.0
	19	S.	—	0.20	+	1.2
	23	S.	—	0.09	+	0.3
Mar.	6	S.	+	1.12		. .
	12	E.	+	0.82	—	0.5
	18	S.	+	0.34	+	1.0
	28	E.		. .		0.0
April	14	F.	+	0.76		. .
Dec.	2	F.	—	0.74	—	1.4
Mean			+	0.007	—	0.20
Div., Flex., etc.				. .	—	0.45

51 Cephei, S. P.

	h.	m.	s.
Right Ascension. . .	6	39	43.629
North Polar Distance	357°	14′	15.″13

1872.				s.		″
Mar.	29	F.	+	0.65	+	0.3
	31	Ha.		. .	+	1.4
May	6	S.	+	1.73	+	1.5
	23	S.	+	0.20	—	0.1
	26	S.	—	0.01	+	2.7
June	11	S.	+	0.07	+	1.2
	17	F.	+	0.44	—	0.1
July	8	Ha.		. .	+	1.2
	19	F.	—	3.58	—	0.5
	20	Ha.		. .	+	1.1
	30	E.	—	0.77		0.0
Aug.	6	Ha.	—	2.02		. .
	23	S.	—	0.13		. .
Sept.	3	S.		. .	+	1.5
Mean			+	0.016	+	0.81
Div., Flex., etc.				. .	—	0.17

ε Canis Majoris.

	h.	m.	s.
Right Ascension. . .	6	53	35.802
North Polar Distance	118°	47′	57.″70

1872.				s.		″
Mar.	28	E.		0.00	+	2.1
April	13	E.	—	0.06	+	0.5
Mean			—	0.030	+	1.30
Div., Flex., etc.				. .	—	0.08

δ Canis Majoris.

	h.	m.	s.
Right Ascension. . .	7	3	11.273
North Polar Distance	116°	11′	27.″95

1872.				s.		″
Mar.	27	Ha.	—	0.05	+	1.1
	28	E.	—	0.01	+	3.6
April	13	E.	—	0.13	+	1.1
	14	F.	—	0.11		. .
Mean			—	0.072	+	1.93
Div., Flex., etc.				. .	—	0.10

δ Geminorum.

	h.	m.	s.
Right Ascension. . .	7	12	28.663
North Polar Distanee .	67°	47′	2.″74

1872.				s.		″
Jan.	5	F.	—	0.30	+	1.0
Feb.	19	S.	—	0.12	+	0.5
	21	E.	—	0.07	—	0.2
	22	F.	—	0.09	+	0.7
Mar.	6	S.	—	0.05	+	0.8
	12	E.	—	0.10	+	1.5
	16	E.	—	0.10	+	1.2
	18	S.		0.00		. .
	21	E.		0.00	+	0.6
	27	Ha.	—	0.13	+	0.7
	28	E.	—	0.04	+	0.7
	29	F.	+	0.02	+	1.0
Apr.	13	E.	—	0.10	+	0.4
	14	F.	—	0.09	+	1.0
Aug.	6	E.	—	0.06	—	1.1
	13	E.	—	0.14	—	0.1
Mean			—	0.086	+	0.58
Div., Flex., etc.				. .	—	0.01

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Piazzi VII, 67.

	h.	m.	s.
Right Ascension. . .	7	17	32.486
North Polar Distance .	21°	16′	38″.05

1872.			s.		″
Mar.	29	F.	— 0.02	—	1.6
Div., Flex., etc. .			. .	—	0.25

Piazzi VII, 67, S. P.

	h.	m.	s.
Right Ascension. . .	7	17	32.486
North Polar Distance .	338°	43′	21″.95

1872.			s.		″
Mar.	27	Ha.	— 0.34	—	1.0
July	26	Ha.	— 0.03		. .
Mean			— 0.185	—	1.0
Div., Flex., etc. .			. .	+	0.44

a^2 Geminorum.

	h.	m.	s.
Right Ascension. . .	7	26	25.529
North Polar Distance .	57°	49′	59″.72

1872.			s.		″
Jan.	5	F.	+ 0.12	—	0.3
	24	E.	+ 0.30	+	0.8
Feb.	14	F.	+ 0.28	+	2.8
	19	S.	+ 0.36		. .
	20	Ha.	+ 0.24		. .
	21	E.	+ 0.19		0.0
	23	S.	+ 0.22		. .
	27	S.	+ 0.25		. .
Apr.	2	E.	+ 0.16	+	0.8
	13	E.	+ 0.27	—	0.7
June	11	S.	+ 0.28	+	1.3
	12	E.	+ 0.25		0.0
	13	F.	+ 0.14	+	1.0
	18	S.	+ 0.32		. .
	21	F.	+ 0.25	+	1.9
	28	E.	+ 0.18	+	0.4
July	29	E.	+ 0.15	+	0.5
Aug.	2	E.	+ 0.18		0.0
	6	E.	+ 0.31	—	0.8
	13	E.	+ 0.29	—	0.9
	30	S.	+ 0.35	—	0.8
Sept.	3	S.	. .	—	3.7
	23	S.	+ 0.27	—	1.1
Oct.	9	S.	+ 0.35		. .
	21	S.	+ 0.29		. .
Nov.	18	S.	+ 0.26	+	1.0
Mean			+ 0.250	+	0.12
Div., Flex., etc. .			. .	—	0.33

a Canis Minoris.

	h.	m.	s.
Right Ascension. . .	7	32	36.120
North Polar Distance .	84°	26′	56″.28

1872.			s.		″
Jan.	24	E.	— 0.23	+	0.2
Feb.	19	S.	— 0.19	—	1.2
Mar.	5	F.	— 0.10	+	0.4
	6	S.	— 0.16	—	0.9
	12	E.	— 0.17	—	0.3
	16	E.	— 0.20	—	0.5
Apr.	2	E.	— 0.17	+	0.3
June	12	E.	— 0.15	+	0.2
	13	F.	— 0.21	—	0.1
	18	S.	— 0.18		. .
	19	S.	— 0.07	+	0.2
	20	F.	— 0.14	+	1.7

a Canis Minoris—Continued.

1872.			s.		″
June	28	E.	— 0.16	+	1.2
July	1	S.	— 0.08		. .
	2	E.	— 0.11		0.0
	18	F.	— 0.07	+	1.7
	26	F.	— 0.17	+	0.2
	29	E.	— 0.17	+	1.0
Aug.	2	E.	— 0.16	—	0.1
	6	E.	— 0.19	—	1.3
	13	E.	. .	—	1.2
	18	E.	— 0.10	—	1.2
	29	S.	— 0.23	+	1.6
Sept.	3	S.	. .	—	3.1
	5	S.	— 0.16		. .
	16	S.	— 0.09		. .
	23	S.	— 0.07		0.0
Nov.	18	S.	— 0.13		. .
Mean			— 0.148	—	0.05
Div., Flex., etc. .			. .	—	0.36

a Canis Minoris, (Ref.)

1872.			s.		″
Jan.	5	F.	. .	+	1.0

β Geminorum.

	h.	m.	s.
Right Ascension. . .	7	37	28.868
North Polar Distance .	61°	40′	0″.02

1872.			s.		″
Jan.	5	F.	— 0.04	+	0.8
	17	F.	+ 0.01	+	0.3
	24	E.	— 0.02	—	0.4
	25	F.	— 0.02	+	1.7
Feb.	14	F.	+ 0.04	—	0.7
	19	S.	— 0.03	—	0.1
	21	E.	— 0.01	+	0.7
	22	F.	— 0.15	+	0.6
	26	F.	— 0.08	+	0.8
Mar.	5	F.	+ 0.01	+	0.6
	6	S.	— 0.07		. .
	12	E.	— 0.07	—	0.2
	16	E.	— 0.04	—	0.3
	19	Ha.	— 0.06	+	0.4
Apr.	2	E.	— 0.03	—	0.7
	10	F.	— 0.01	+	1.8
	13	E.	— 0.09	+	0.6
June	12	E.	— 0.11	+	2.3
	13	F.	— 0.16	+	2.0
	18	S.	— 0.09		. .
	21	F.	— 0.08	+	1.1
	28	E.	— 0.05	—	0.3
July	2	E.	— 0.04	+	0.7
	26	F.	— 0.04	+	2.0
	29	E.	— 0.11	+	1.6
Aug.	2	E.	— 0.13	+	0.6
	6	E.	— 0.04	—	0.7
	13	E.	— 0.03	—	4.7
	18	E.	— 0.02	—	0.9
	30	S.	— 0.01	—	0.4
Sept.	3	S.	. .	—	2.2
	5	S.	— 0.03		. .
	16	S.	— 0.02		. .
	23	S.	+ 0.03	—	0.1
Oct.	9	S.	+ 0.03		. .
	21	S.	— 0.04		. .
Mean			— 0.047	—	0.23
Div., Flex., etc. .			. .	—	0.30

ϕ Geminorum.

	h.	m.	s.
Right Ascension. . .	7	45	39.724
North Polar Distance .	62°	54′	18″.10

ϕ Geminorum—Continued.

1872.			s.		″
Jan.	5	F.	— 0.11		. .
	25	F.	— 0.08		. .
Feb.	14	F.	— 0.10	+	0.5
	21	E.	— 0.04	+	0.7
	22	F.	— 0.10	+	0.2
	26	F.	— 0.02	+	0.3
	27	S.	— 0.26	+	2.4
Mar.	5	F.	— 0.07	—	0.9
	12	E.	— 0.06	—	0.1
	16	E.	— 0.10	—	1.1
	18	S.	— 0.11	+	1.0
	19	Ha.	— 0.06	+	0.6
	20	F.	— 0.12	—	0.1
	28	E.	— 0.07	+	0.9
	29	F.	— 0.04	+	0.6
Apr.	2	E.	— 0.08	+	0.3
	10	F.	— 0.09	+	1.9
	13	E.	— 0.12	+	1.6
Mean			— 0.091	+	0.55
Div., Flex., etc. .			. .	—	0.30

3 Ursæ Majoris, S. P.

	h.	m.	s.
Right Ascension. . .	8	0	2.769
North Polar Distance .	338°	50′	49″.79

1872.			s.		″
May	26	S.	— 0.24	+	1.6
Div., Flex., etc. .			. .	+	0.44

15 Argûs, (ι).

	h.	m.	s.
Right Ascension. . .	8	2	5.657
North Polar Distance .	113°	56′	11″.47

1872.			s.		″
Jan.	17	F	— 0.09	+	1.7
Apr.	2	E.	— 0.06	+	1.0
	10	F.	— 0.12	+	2.7
Mean			— 0.090	+	1.10
Div., Flex., etc. .			. .	—	0.07

ε Hydræ.

	h.	m.	s.
Right Ascension. . .	8	39	59.831
North Polar Distance .	83°	6′	46″.49

1872.			s.		″
Jan.	24	E.	— 0.05	+	2.0
	25	F.	— 0.07	+	1.8
Feb.	22	F.	— 0.08	—	0.7
Mar.	12	E.	+ 0.05	+	1.6
	21	E.	— 0.08	+	1.3
	29	F.	+ 0.06	—	0.8
Apr.	1	F.	— 0.13	+	2.7
Nov.	20	F.	— 0.07	+	0.5
Mean			— 0.046	+	1.05
Div., Flex., etc. .			. .	—	0.32

ι Ursæ Majoris.

	h.	m.	s.
Right Ascension. . .	8	50	26.008
North Polar Distance .	41°	27′	28″.12

1872.			s.		″
Apr.	2	E.	— 0.01	—	1.1
Div., Flex., etc. .			. .	—	0.14

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κ Cancri.

Right Ascension . . . 9 h 0 m 48.745 s

North Polar Distance . 78° 49′ 4.″56

1872.			s.		″
Feb.	19	S.	+ 0.03	+	0.4
	22	F.	— 0.05	+	1.9
	23	S.	+ 0.05	—	0.2
	26	F.	+ 0.04	+	0.9
Mar.	6	S.	+ 0.10	+	0.7
	12	E.	+ 0.16	+	1.1
	18	S.	0.00	+	1.3
	19	Ha.	+ 0.02	+	0.3
	24	E.	+ 0.01		. .
	27	Ha.	+ 0.09	—	0.6
Apr.	1	F.	— 0.01	+	1.6
	2	E.	+ 0.05	—	0.2
Nov.	20	F.	— 0.02	+	0.9
Mean			+ 0.036	+	0.68
Div., Flex., etc. .			. .	—	0.15

1 Draconis.

Right Ascension . . . 9 h 18 m 38.856 s

North Polar Distance . 8° 6′ 40.″23

1872.			s.		″
Mar.	12	E.	— 0.07	+	0.8
	21	E.	— 0.51	+	0.5
Apr.	2	E.	— 0.46	+	0.9
Mean			— 0.347	+	0.73
Div., Flex., etc. .			. .	—	0.39

1 Draconis, S. P.

Right Ascension . . . 9 h 18 m 38.856 s

North Polar Distances 351° 53′ 19.″77

1872.			s.
Aug.	2	Ha.	— 0.21 . .

α Hydræ.

Right Ascension . . . 9 h 21 m 17.854 s

North Polar Distance . 98° 6′ 17.″29

1872.			s.		″
Mar.	5	F.	— 0.09		. .
	12	E.	— 0.07	+	0.2
	21	E.	— 0.05	+	0.2
	24	E.	— 0.01	—	0.7
	27	Ha.	— 0.03	—	1.1
Apr.	1	F.	— 0.06	+	2.5
	2	E.	+ 0.03	—	0.2
	16	S.	— 0.05	+	1.6
	17	E.	+ 0.03	+	0.9
July	2	E.	— 0.05	+	1.8
Mean			— 0.035	+	0.58
Div., Flex., etc. .			. .	—	0.46

θ Ursæ Majoris.

Right Ascension . . . 9 h 24 m 16.940 s

North Polar Distance . 37° 44′ 27.″23

1872.			s.		″
Sept.	19	S.	+ 0.19	+	1.4
Nov.	18	S.	+ 0.13		0.0
Mean			+ 0.160	+	0.70
Div., Flex., etc. .			. .	—	0.12

ε Leonis.

Right Ascension . . . 9 h 38 m 34.962 s

North Polar Distance . 65° 38′ 14.″74

1872.			s.		″
Jan.	26	S.	+ 0.03	+	0.2
Feb.	22	F.	— 0.11	+	0.9
Mar.	5	F.	— 0.15	—	0.9
	19	Ha.	. .	+	0.2
	20	F.	— 0.08	+	0.2
	21	E.	— 0.03	+	0.1
	24	E.	— 0.12	—	0.8
	29	F.	— 0.03	—	0.3
Apr.	2	E.	— 0.02	—	0.8
	13	E.	— 0.04	+	0.3
	16	S.	+ 0.02	+	1.0
	17	E.	+ 0.04	+	0.9
July	22	E.	0.00	+	0.3
Sept.	19	S.	— 0.09		. .
Oct.	26	E.	— 0.06	—	0.2
Nov.	18	S.	— 0.12	+	0.4
	20	F.	0.00	+	1.7
Mean			— 0.048	+	0.20
Div., Flex., etc. .			. .	—	0.10

μ Leonis.

Right Ascension . . . 9 h 45 m 28.774 s

North Polar Distance . 63° 23′ 28.″61

1872.			s.		″
Feb.	22	F.	+ 0.06	+	0.4
	26	F.	— 0.03	+	0.7
Mar.	20	F.	+ 0.03	—	0.6
	21	E.	. .	—	0.4
	24	E.	+ 0.09	—	0.7
Apr.	2	E.	+ 0.02	+	1.3
	5	E.	+ 0.08		0.0
	13	E.	— 0.02	—	0.4
	16	S.	+ 0.10	+	2.2
	17	E.	+ 0.01		. .
May	4	Ha.	— 0.26	+	2.2
	14	F.	+ 0.05	+	2.2
Nov.	18	S.	+ 0.02		0.0
	20	F.	— 0.14	+	2.0
Mean			+ 0.001	+	0.68
Div., Flex., etc. .			. .	—	0.28

α Leonis.

Right Ascension . . . 10 h 1 m 33.241 s

North Polar Distance . 77° 24′ 28.″35

1872.			s.		″
Feb.	22	F.	0.00	+	0.6
	23	S.	— 0.10	+	0.9
	26	F.	— 0.08	+	1.2
Mar.	21	E.	— 0.01	+	0.2
	24	E.	— 0.07	+	0.2
	29	F.	— 0.01		0.0
Apr.	13	E.	— 0.02	+	1.9
	17	E.	+ 0.05	—	0.5
May	4	Ha.	— 0.01	+	2.0
	14	F.	— 0.06	+	1.5
June	19	S.	— 0.06	+	1.1
July	5	S.	— 0.08	+	2.6
	22	E.	— 0.08	+	1.3
	27	F.	0.00	+	1.6
	30	E.	. .	+	0.9
Aug.	3	E.	— 0.18		0.0
	7	E.	— 0.08	+	1.6
Sept.	15	S.	— 0.01	+	0.9
	19	S.	— 0.02	+	0.5
	23	S.	— 0.12	—	0.7
	30	S.	— 0.04	+	0.4

α Leonis—Continued.

			s.		″
Oct.	1	E.	— 0.06	—	1.0
	8	S.	— 0.29		. .
	15	S.	— 0.02	—	0.3
	16	S.	— 0.06	—	0.3
	20	S.	— 0.13	—	1.0
Nov.	18	S.	0.00	—	0.5
Mean			— 0.059	+	0.58
Div., Flex., etc. .			. .	—	0.13

α Leonis, (Ref.)

1872.			s.
Nov.	20	F.	+ 0.07 . .

32 Ursæ Majoris.

Right Ascension . . . 10 h 8 m 42.699 s

North Polar Distance . 24° 15′ 16.″68

1872.			s.		″
Feb.	26	F.	— 0.01	—	0.4
Apr.	16	S.	+ 0.06	+	0.9
Mean			+ 0.025	+	0.25
Div., Flex., etc. .			. .	—	0.23

32 Ursæ Majoris, S. P.

Right Ascension . . 10 h 8 m 42.699 s

North Polar Distance . 335° 44′ 43.″32

1872.			s.		″
Nov.	23	E.	+ 0.02	—	0.8
Div., Flex., etc. .			. .	+	0.39

γ¹ Leonis.

Right Ascension. . . 10 h 12 m 54.759 s

North Polar Distance . 69° 30′ 41.″83

1872.			s.		″
Jan.	26	S.	+ 0.01		. .
Feb.	23	S.	— 0.03	+	4.7
	26	F.	— 0.02	+	0.8
Mar.	21	E.	— 0.02	+	1.1
Apr.	17	E.	— 0.02	+	1.8
May	4	Ha.	— 0.07	+	2.2
	14	F.	— 0.01	+	2.9
June	19	S.	— 0.03	+	1.7
July	5	S.	+ 0.02	+	3.1
	22	E.	— 0.11	+	1.7
	27	F.	+ 0.04	+	2.3
Aug.	3	E.	— 0.06	+	4.6
	6	E.	— 0.04	+	1.0
Sept.	15	S.	+ 0.05	+	2.1
	19	S.	+ 0.02	+	0.7
	23	S.	— 0.05	—	0.4
	30	S.	+ 0.03	+	0.9
Oct.	1	E.	— 0.01	—	0.3
	8	S.	— 0.16		. .
	9	S.	+ 0.05		. .
	15	S.	— 0.04		0.0
	16	S.	+ 0.01	+	0.7
	20	S.	— 0.12		0.0
	25	S.	— 0.02		. .
	26	E.	— 0.02	+	1.8
Nov.	18	S.	— 0.05	+	0.1
	20	F.	+ 0.01	—	3.3
Mean			— 0.024	+	1.31
Div., Flex., etc. .			. .	—	0.04

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9 Dracomis, S. P.

	h.	m.	s.
Right Ascension . .	10	24	9.112
North Polar Distance .	346°	22′	15″.09

1872.			s.		″
Nov.	23	E.	— 0.18	—	0.1
Div., Flex., etc. .			. .	+	0.25

ρ Leonis.

	h.	m.	s.
Right Ascension. . .	10	26	4.258
North Polar Distance .	80°	2′	7″.40

1872.			s.		″
April	25	E.	— 0.08	+	4.0
	29	E.	+ 0.02	+	2.2
May	4	Ha.	— 0.11	+	1.2
Oct.	26	E.	. .	—	0.6
Mean			— 0.057	+	2.27
Div., Flex. etc. .			. .	—	0.20

l Leonis.

	h.	m.	s.
Right Ascension. . .	10	42	31.653
North Polar Distance .	78°	46′	40″.25

1872.			s.		″
Jan.	5	F.	0.00	+	0.8
Feb.	23	S.	+ 0.05	+	1.7
April	17	E.	+ 0.03	+	0.5
	19	Ha.	+ 0.04	—	1.4
	22	F.	— 0.03	+	1.5
	23	Ha.	+ 0.04	+	1.6
	24	S.	+ 0.11	+	2.8
	25	E.	+ 0.04	+	0.9
	29	E.	— 0.02	+	1.8
	30	F.	0.00	+	2.3
May	4	F.	+ 0.16	+	1.6
	13	F.	+ 0.04	+	1.6
	14	F.	+ 0.04	+	1.6
Mean			+ 0.038	+	1.33
Div., Flex., etc. .			. .	—	0.15

α Ursæ Majoris.

	h.	m.	s.
Right Ascension. . .	10	55	48.553
North Polar Distance .	27°	33′	31″.30

1872.			s.		″
April	11	S.	— 0.20	—	0.2
	19	Ha.	+ 0.03	—	0.5
	23	Ha.	+ 0.04	+	0.6
	25	E.	— 0.07	—	2.3
	30	F.	— 0.10	+	0.5
May	14	F.	— 0.02	+	0.3
July	27	F.	+ 0.09	—	0.3
Oct.	20	S.	— 0.29	—	1.1
	31	S.	— 0.08	—	3.7
Mean			— 0.067	—	0.74
Div., Flex., etc. .			. .	—	0.29

α Ursæ Majoris, (Ref.)

1872.			s.	
April	24	S.	+ 0.28	. .

δ Leonis.

	h.	m.	s.
Right Ascension. . .	11	7	17.957
North Polar Distance .	68°	46′	30″.55

1872.			s.		″
Jan.	26	S.	— 0.09	+	0.7
April	5	E.	— 0.13	+	1.4
	13	E.	— 0.08	—	0.5
	23	Ha.	— 0.05	+	1.4
	25	E.	— 0.07	+	1.3
	29	E.	— 0.09	—	0.6
	30	F.	+ 0.01	+	1.9
May	4	F.	+ 0.11	+	1.4
	7	E.	. .	—	0.2
	13	F.	— 0.02	+	1.2
	14	F.	— 0.16	+	1.0
June	12	E.	— 0.08	+	1.3
	19	S.	— 0.01	+	1.4
Aug.	7	E.	— 0.09	+	0.1
	19	E.	— 0.04	+	0.8
Oct.	1	E.	— 0.10	+	0.6
	9	E.	— 0.12	+	0.4
	20	S.	— 0.16	—	1.1
	31	S.	— 0.19	—	0.5
Nov.	23	E.	— 0.12	—	1.0
Mean			— 0.078	+	0.55
Div., Flex., etc. .			. .	—	0.01

δ Crateris.

	h.	m.	s.
Right Ascension . .	11	12	56.572
North Polar Distance .	104°	5′	9″.40

1872.			s.		″
April	30	F.	0.00	+	0.9
May	4	F.	+ 0.07	+	1.1
	7	E.	+ 0.07	+	1.4
	13	F.	+ 0.07	+	0.9
	14	F.	— 0.03	+	1.3
	16	S.	— 0.04	+	1.0
June	12	E.	+ 0.07	+	1.9
Nov.	23	E.	— 0.17	—	3.0
Mean			— 0.005	+	0.69
Div., Flex., etc. .			. .	—	0.29

τ Leonis.

	h.	m.	s.
Right Ascension. . .	11	21	21.290
North Polar Distance .	86°	26′	20″.14

1872.			s.		″
Feb.	25	E.	+ 0.02	+	0.4
April	5	E.	+ 0.07	—	0.4
	11	S.	+ 0.11	—	0.1
	23	Ha.	— 0.01	+	0.7
	25	E.	+ 0.07	+	1.1
Mean			+ 0.052	+	0.32
Div., Flex., etc. .			. .	—	0.41

λ Draconis, S. P.

	h.	m.	s.
Right Ascension . .	11	23	46.644
North Polar Distance .	340°	2′	12″.63

1872.			s.		″
Nov.	23	E.	+ 0.24	+	0.4
Dec.	7	S.	+ 0.27		. .
Mean			+ 0.255	+	0.4
Div., Flex., etc. .			. .	+	0.38

υ Leonis.

	h.	m.	s.
Right Ascension . .	11	30	23 751
North Polar Distance .	90°	7′	1″.36

1872.			s.		″
Jan.	5	F.	+ 0.01	+	0.1
Feb.	25	E.	+ 0.05	—	0.6
April	5	E.	— 0.02	—	0.4
	20	S.	0.00	+	0.1
	29	E.	— 0.07	+	1.2
May	7	E.	+ 0.09	+	1.6
Nov.	23	E.	— 0.12	—	2.1
Mean			— 0.009	—	0.01
Div., Flex., etc. .			. .	—	0.42

β Leonis.

	h.	m.	s.
Right Ascension. . .	11	42	31.776
North Polar Distance .	74°	42′	43″.87

1872.			s.		″
Feb.	25	E.	— 0.01	+	0.1
Mar.	24	E.	— 0.09	—	1.1
April	1	F.	+ 0.06	+	2.3
	11	S.	— 0.11	+	0.8
	20	S.	— 0.01	+	0.6
May	2	S.	. .	+	2.7
	7	E.	+ 0.03	+	0.9
	13	F.	— 0.01	+	1.7
	14	F.	— 0.03	+	1.0
June	12	E.	+ 0.05	+	1.5
Aug.	13	E.	— 0.02	+	1.4
	19	E.	— 0.05	+	1.6
Oct.	9	E.	+ 0.05	+	2.1
	18	S.	+ 0.03	—	0.7
Nov.	23	E.	— 0.06	—	0.2
Mean			— 0.012	+	0.98
Div., Flex., etc. .			. .	—	0.05

ο Virginis.

	h.	m.	s.
Right Ascension. . .	11	58	41.337
North Polar Distance .	80°	33′	20″.86

1872.			s.		″
Feb.	25	E.	— 0.04	+	0.7
Mar.	24	E.	+ 0.03	—	2.0
April	1	F.	+ 0.01	+	2.8
	5	E.	0.00	—	0.6
	11	S.	— 0.03	+	0.5
	13	E.	— 0.07	+	1.3
	19	Ha.	— 0.04	+	0.5
	20	S.	— 0.06	+	0.8
	23	Ha.	— 0.05	+	1.2
May	2	S.	— 0.02	+	2.1
	4	F.	+ 0.11	+	2.0
	8	F.	— 0.03	+	1.6
	23	S.	— 0.09	+	0.7
June	12	E.	— 0.05	+	1.8
Oct.	18	S.	— 0.06		. .
Nov.	23	E.	— 0.10	—	0.7
	24	F.	. .	+	0.9
Mean			— 0.031	+	0.85
Div., Flex., etc. .			. .	—	0.24

4 Draconis.

	h.	m.	s.
Right Ascension. . .	12	6	10.656
North Polar Distance .	11°	40′	22″.17

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4 Draconis—Continued.

1872.			s.		″
Jan.	31	Ha.	+ 0.25	—	1.6
April	19	Ha.	— 0.30	—	1.8
	23	Ha.	— 0.54	—	0.4
Mean			— 0.197	—	1.27
Div., Flex., etc. .			. .	—	0.30

4 Draconis, S. P.

	h.	m.	s.
Right Ascension . .	12	6	10.656
North Polar Distance .	348°	19′	37″.83

1872.			s.		″
Nov.	23	E.	— 1.21	+	0.1
Div., Flex., etc. .			. .	+	0.19

4 Draconis, (Ref.)

1872.			s.		″
April	1	F.	— 0.50	—	2.3

η Virginis.

	h.	m.	s.
Right Ascension. . .	12	13	21.479
North Polar Distance .	89°	57′	18″.28

1872.			s.		″
Jan.	31	Ha.	— 0.11	—	0.2
Feb.	25	E.	+ 0.08	+	0.6
Mar.	24	E.	— 0.03	—	1.3
April	5	E.	+ 0.02	+	0.1
	13	E.	+ 0.09	+	0.3
	19	Ha.	— 0.05	+	0.6
	22	F.	+ 0.04	+	2.0
	23	Ha.	— 0.06	+	0.9
	29	E.	0.00	+	0.8
May	2	S.	+ 0.04	+	2.3
	4	F.	+ 0.14	+	1.9
	7	E.	+ 0.05	+	0.6
	13	F.	— 0.02	+	1.0
	23	S.	— 0.04	+	0.9
	30	Ha.	— 0.03	+	1.0
June	12	E.	+ 0.06	+	2.3
	13	F.	+ 0.07	+	0.9
Mean			+ 0.015	+	0.86
Div., Flex., etc. .			. .	—	0.41

β Corvi.

	h.	m.	s.
Right Ascension. . .	12	27	40.017
North Polar Distance	112°	41′	17″.25

1872.			s.		″
Jan.	31	Ha.	— 0.05	+	0.6
Mar.	24	E.	— 0.10	—	0.9
April	19	Ha.	— 0.05	+	0.3
	22	F.	+ 0.02	+	1.2
May	2	S.	— 0.07	+	2.6
	13	F.	+ 0.05	+	1.5
	16	S.	+ 0.01	+	0.3
	30	Ha.	— 0.06	+	0.8
June	13	F.	+ 0.05	+	0.6
Mean			— 0.023	+	0.78
Div., Flex., etc. .			. .	—	0.08

κ Draconis.

	h.	m.	s.
Right Ascension. . .	12	28	0.490
North Polar Distance .	19°	30′	22″.77

1872.			s.		″
June	12	E.	— 0.14		0.0
Div., Flex., etc. .			. .	—	0.27

κ Draconis, S. P.

	h.	m.	s.
Right Ascension. . .	12	28	0.490
North Polar Distance	340°	29′	37″.23

1872.			s.		″
Oct.	31	F.	+ 0.42	+	3.6
Nov.	8	F.	— 0.31	+	0.8
Mean			+ 0.055	+	2.20
Div., Flex., etc. .			. .	+	0.36

κ Draconis, (Ref.)

			″
April	1	F. . .	— 34.3r

32² Camelopardalis.

	h.	m.	s.
Right Ascension. . .	12	48	12.719
North Polar Distance .	5°	53′	30″.09

1872.			s.		″
April	19	Ha.	— 0.75	—	1.1
	21	E.	— 2.13	—	1.9
	22	F.	— 0.66	+	0.1
	25	E.	+ 0.04	+	0.8
Mean			— 0.075	—	0.52
Div., Flex., etc. .			. .	—	0.40

32² Camelopardalis, S. P.

	h.	m.	s.
Right Ascension. . .	12	48	12.719
North Polar Distance	354°	6′	29″.91

1872.			s.		″
Nov.	23	E.	— 0.71	+	0.6
Div., Flex., etc. .			. .	—	0.09

12 Canum Venaticorum.

	h.	m.	s.
Right Ascension. . .	12	50	2.235
North Polar Distance .	50°	59′	23″.10

1872.			s.		″
Jan.	31	Ha.	+ 0.08	+	0.9
April	1	F.	— 0.07	+	0.6
	4	Ha.	— 0.06	+	1.3
	10	F.	— 0.11	—	0.4
	22	F.	— 0.03	+	1.3
May	8	F.	+ 0.10	+	1.1
	13	F.	— 0.14	+	1.0
	14	S.	+ 0.01	+	1.5
	27	E.	— 0.01	+	0.3
	31	E.	— 0.02	+	0.8
June	6	E.	+ 0.02	+	1.3
	13	F.	+ 0.07	+	1.4
Nov.	3	F.	+ 0.15	+	1.9
Mean			— 0.001	+	1.00
Div., Flex., etc.			. .	—	0.28

θ Virginis.

	h.	m.	s.
Right Ascension. . .	13	3	19.481
North Polar Distance .	94°	51′	17″.30

1872.			s.		″
Jan.	26	S.	— 0.01	—	0.5
	31	Ha.	— 0.02	—	0.5

θ Virginis—Continued.

1872.			s.		″
Feb.	26	F.	— 0.03	+	1.2
April	1	F.	— 0.10	+	1.3
	5	E.	— 0.12	+	1.0
	10	F.	— 0.14	+	1.5
	13	E.	+ 0.04	+	1.4
	21	E.	— 0.10	+	1.2
	22	F.	+ 0.03	+	1.8
	25	E.	+ 0.10	+	1.1
	29	E.	— 0.01	+	1.2
May	6	S.	— 0.06	+	1.2
	8	F.	— 0.12	+	0.1
	10	S.	— 0.06	+	1.7
	14	S.	— 0.03	+	1.9
	16	S.	— 0.02	+	0.2
	19	E.	— 0.03	+	1.3
	20	F.	— 0.10	+	0.9
	21	Ha.	— 0.01	+	0.4
	27	E.	— 0.04	—	0.1
	31	E.	— 0.03	+	1.3
June	4	E.	— 0.06	+	1.1
	6	E.	+ 0.14	+	1.4
	8	E.	— 0.11	+	1.0
	13	F.	+ 0.04	+	0.7
July	5	S. .	— 0.04	+	1.1
Mean			— 0.034	+	0.96
Div., Flex., etc. .			. .	—	0.57

α Virginis.

	h.	m.	s.
Right Ascension. . .	13	18	27.142
North Polar Distance	100°	29′	31″.88

1872.			s.		″
Feb.	25	E.	— 0.13	+	2.0
	26	F.	+ 0.05	+	2.5
April	5	E.	— 0.12	+	0.7
	10	F.	— 0.11	+	2.2
	13	E.	+ 0.07	+	0.6
	16	S.	+ 0.08	+	0.7
	19	Ha.	— 0.01	—	1.1
	21	E.	+ 0.03	+	0.8
	29	E.	— 0.13	+	1.4
May	6	S.	— 0.05	+	2.9
	10	S.	— 0.08	+	1.1
	16	S.	— 0.06	+	2.2
	19	E.	— 0.01	+	1.5
	20	F.	— 0.07	+	1.4
	30	Ha.	— 0.04	+	1.6
	31	E.	— 0.06	+	0.5
June	4	E.	— 0.06	+	1.3
	6	E.	— 0.08	+	1.3
	8	E.	— 0.07	+	1.7
	13	F.	+ 0.03	+	0.5
July	1	S.	— 0.01		. .
	5	S.	— 0.06	+	1.2
Aug.	19	E.	— 0.09	+	0.7
	30	S.	— 0.19		. .
Sept.	6	S.	+ 0.05		. .
	16	S.	— 0.08	+	0.1
	17	S.	— 0.07		. .
	24	S.	— 0.10	+	0.8
Oct.	28	S.	— 0.01		. .
	31	S.	— 0.06	+	1.3
Nov.	3	F.	— 0.05	+	0.4
	7	F.	— 0.10	+	0.9
	18	E.	— 0.01	+	1.0
	22	E.	— 0.01	+	0.9
	26	S.	— 0.15	+	1.1
Mean			— 0.047	+	1.14
Div., Flex., etc. .			. .	—	0.36

ζ Virginis.

	h.	m.	s.
Right Ascension. . .	13	28	10.337
North Polar Distance .	89°	56′	25″.20

1872.			s.		″
Jan.	31	Ha.	+ 0.01	+	0.4
April	10	F.	— 0.07	+	1.1

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ζ Virginis—Continued.

1872.				s.		″
April	13	E.	+	0.04	+	0.1
	21	E.		0.00	+	1.0
	25	E.	+	0.05	+	1.4
May	4	F.	+	0.20	+	2.5
	30	Ha.	+	0.06	+	1.1
	31	E.	+	0.03	+	0.5
June	4	E.	—	0.02	+	0.6
	8	E.	—	0.03	+	1.3
	10	Ha.	—	0.06	+	0.9
	13	F.	+	0.07	+	1.1
July	1	S.	+	0.01	+	0.9
Aug.	11	E.	—	0.07	+	1.0
Nov.	3	F.	+	0.25	+	1.6
	18	E.	—	0.14	+	1.8
	22	E.	—	0.01	+	0.7
Mean			+	0.019	+	1.06
Div., Flex., etc. .				. .	—	0.41

ζ Virginis, (Ref.)

1872.				s.		″
April	30	F.	+	0.11	+	2.2

η Ursæ Majoris.

	h.	m.	s.
Right Ascension. . .	13	42	29.734
North Polar Distance .	40°	2′	49.″74

1872.				s.		″
Jan.	31	Ha.	—	0.03	+	1.2
June	13	F.	+	0.07	—	1.4
July	5	S.	+	0.06	—	1.4
Sept.	17	S.	+	0.06		. .
	20	S.	+	0.07	+	0.7
Nov.	3	F.	+	0.20	+	2.1
Mean			+	0.072	+	0.60
Div., Flex., etc. .				. .	—	0.11

η Bootis.

	h.	m.	s.
Right Ascension. . .	13	48	35.446
North Polar Distance .	70°	57′	33.″90

1872.				s.		″
Jan.	31	Ha.	—	0.08	+	1.9
April	4	Ha.	—	0.04	+	1.1
	25	E.	—	0.05	+	0.8
	30	F.	—	0.06	+	0.5
May	14	S.	—	0.06	+	1.3
	19	E.	—	0.10	—	0.4
	27	E.	—	0.02	+	0.6
	30	Ha.	—	0.16	+	1.5
June	4	S.	—	0.05	+	1.1
	6	Ha.	—	0.03		0.0
	8	E.	—	0.07	+	1.0
	12	E.	—	0.02	+	1.9
	13	F.	—	0.05	+	1.6
July	1	S.	—	0.03	—	0.3
	5	S.	—	0.07	+	0.9
Aug.	11	E.	—	0.02	+	1.0
Sept.	16	S.	—	0.14	+	2.0
	17	S.	—	0.12		. .
	20	S.	—	0.06	+	1.3
Nov.	3	F.	+	0.09	+	1.5
	18	E.	—	0.12	+	2.1
	22	E.	—	0.08	+	0.9
	26	E.	—	0.04	+	1.1
Mean			—	0.060	+	1.06
Div., Flex., etc. .				. .	—	0.10

α Draconis.

	h.	m.	s.
Right Ascension. . .	14	0	55.511
North Polar Distance .	25°	0′	44.″32

1872.				s.		″
Apr.	30	F.	—	0.20		. .
May	16	S.	—	0.06	—	2.7
	30	S.	+	0.18	+	0.2
	31	E.	+	0.17	—	0.8
June	6	Ha.	+	0.04	—	1.5
	26	Ha.	—	0.04	—	1.1
July	1	S.	+	0.16	—	2.3
Mean			+	0.036	—	1.37
Div., Flex., etc. .				. .	—	0.23

α Bootis.

	h.	m.	s.
Right Ascension. . .	14	9	49.410
North Polar Distance .	70°	8′	59.″25

1872.				s.		″
Jan.	30	S.	—	0.07		. .
Feb.	27	S.	—	0.05	+	0.4
Apr.	30	F.	+	0.03		. .
May	4	F.	+	0.18	+	2.0
	14	S.	—	0.01	+	1.4
	16	S.	—	0.03	+	0.9
	20	F.	—	0.13	+	1.3
	21	Ha.	+	0.05	+	0.2
	30	S.	+	0.06	+	2.2
	31	E.	+	0.04	+	0.9
June	4	S.	+	0.01	+	0.8
	6	Ha.	—	0.02	+	1.8
	8	E.	+	0.01	+	0.7
	26	Ha.	—	0.11	+	2.5
July	1	S.	+	0.06	+	1.4
Aug.	11	E.	+	0.05	+	0.8
Sept.	16	S.	—	0.03	+	2.3
Oct.	2	E.	+	0.05		. .
	3	F.		0.00		. .
	10	E.	+	0.03	+	3.3
Nov.	3	F.	+	0.18	+	1.5
	6	E.	+	0.02	+	1.1
	14	E.	+	0.04	+	4.3
	18	E.	+	0.02	+	3.4
	22	E.	+	0.09	+	1.8
	26	E.	—	0.01	+	2.0
Mean			+	0.018	+	1.68
Div., Flex., etc. .				. .	—	0.06

θ Bootis.

	h.	m.	s.
Right Ascension. . .	14	20	50.315
North Polar Distance .	37°	33′	24.″00

1872.				s.		″
Apr.	4	Ha.	+	0.04	+	1.7
	22	F.	—	0.03	+	0.5
May	9	Ha.	—	0.04	+	0.7
Mean			—	0.010	+	0.97
Div., Flex., etc. .				. .	—	0.13

5 Ursæ Minoris.

	h.	m.	s.
Right Ascension. . .	14	27	49.405
North Polar Distance .	13°	44′	7.″46

1872.				s.		″
May	10	S.	—	0.30	—	1.6
June	26	Ha.	—	0.15	—	0.5
Mean			—	0.225	—	1.05
Div., Flex., etc. .				. .	—	0.30

5 Ursæ Minoris, S. P.

	h.	m.	s.
Right Ascension. . .	14	27	49.405
North Polar Distance .	346°	15′	52.″54

1872.				s.		″
Jan.	9	F.	—	0.22	+	2.1
Div., Flex., etc. .				. .	+	0.25

ε² Bootis.

	h.	m.	s.
Right Ascension. . .	14	39	23.846
North Polar Distance .	62°	23′	5.″17

1872.				s.		″
Jan.	30	S.	—	0.10		. .
Feb.	1	E.	+	0.19	—	0.2
Apr.	4	Ha.	—	0.07	+	1.7
	22	F.	+	0.02	+	1.2
May	9	Ha.	+	0.02	+	0.6
	10	S.	—	0.02	+	1.3
	30	S.	+	0.01	+	1.3
	31	E.	+	0.09	+	0.5
June	4	S.	+	0.03	—	0.4
	6	Ha.	—	0.03	+	1.6
	10	Ha.	—	0.01	+	0.6
	12	E.	—	0.06	+	2.0
	17	F.	+	0.04	+	0.4
	26	Ha.	—	0.10	+	1.4
	28	E.	+	0.08	+	0.8
Oct.	2	E.	—	0.02	+	2.6
	10	E.	—	0.04	+	3.2
Nov.	14	E.	—	0.06	—	1.1
	18	E.	—	0.08	+	2.9
	22	E.		0.00	+	1.4
	26	E.	+	0.08	+	1.3
Mean			—	0.001	+	1.16
Div., Flex., etc. .				. .	—	0.06

ε² Bootis, (Ref.)

1872.				s.		″
May	4	F.	—	0.25	+	1.0

α² Libræ.

	h.	m.	s.
Right Ascension. . .	14	43	48.013
North Polar Distance .	105°	30′	28.″90

1872.				s.		″
Feb.	27	S.	+	0.04		. .
Apr.	4	Ha.	—	0.06	+	2.8
	16	S.	+	0.16	+	0.8
	22	F.	—	0.03	+	0.2
May	4	F.	+	0.04	+	2.2
	6	S.	+	0.12	+	2.1
	9	Ha.	—	0.06	+	0.2
	21	Ha.	+	0.03	+	0.6
	30	S.		0.00	+	2.1
June	4	S.	—	0.07	+	1.8
	10	Ha.	—	0.02	+	0.9
	12	E.	+	0.04	+	1.8
	13	F.	+	0.01	+	2.2
	19	S.		0.00		. .
Mean			+	0.014	+	1.48
Div., Flex., etc. .				. .	—	0.26

β Ursæ Minoris, S. P.

	h.	m.	s.
Right Ascension. . .	14	51	6.139
North Polar Distance .	344°	40′	41.″59

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β URSÆ MINORIS, S. P.—Continued.

1872.			s.		″
Jan.	12	E.	+ 0.50	−	0.2
April	10	F.	+ 0.62	+	2.5
Mean			+ 0.560	+	1.15
Div., Flex., etc. .			. .	+	0.32

β BOOTIS.

	h.	m.	s.
Right Ascension. . .	14	57	7.468
North Polar Distance.	49°	6′	12″.21

1872.			s.		″
Feb.	1	E.	+ 0.19	+	0.4
April	23	Ha.	− 0.01	+	0.1
Nov.	18	E.	− 0.03	+	0.6
Mean			+ 0.050	+	0.37
Div., Flex., etc. .			. .	−	0.15

β LIBRÆ.

	h.	m.	s.
Right Ascension. . .	15	10	7.275
North Polar Distance .	98°	54′	30″.89

1872.			s.		″
Jan.	22	S.	− 0.02		. .
Feb.	1	E.	+ 0.14	+	0.7
	27	S.	− 0.04	+	1.2
May	10	S.	+ 0.03	+	2.5
	14	S.	+ 0.04	+	1.1
	21	Ha.	+ 0.06	+	0.8
June	4	E.	+ 0.05	+	0.7
	8	E.	− 0.17	+	1.0
	11	S.	− 0.03	+	0.1
	17	F.	0.00	+	2.0
	18	Ha.	− 0.02	+	2.3
	28	E.	+ 0.07	+	1.5
Oct.	10	E.	− 0.05	+	3.5
Mean			+ 0.031	+	1.45
Div., Flex., etc. .			. .	−	0.45

μ^1 BOOTIS.

	h.	m.	s.
Right Ascension. . .	15	19	39.360
North Polar Distance .	52°	10′	21″.28

1872.			s.		″
Feb.	1	E.	+ 0.01	−	1.7
June	4	E.	+ 0.02	+	1.3
	18	Ha.	+ 0.07	+	1.8
	19	S.	− 0.03	+	0.2
	28	E.	+ 0.01	+	4.2
Mean			+ 0.016	+	1.16
Div., Flex., etc. .			. .	−	0.30

γ^2 URSÆ MINORIS, S. P.

	h.	m.	s.
Right Ascension. . .	15	20	56.929
North Polar Distance .	342°	17′	22″.53

1872.			s.		″
Jan.	9	F.	+ 0.16	−	1.4
	12	E.	− 0.07	−	3.6
Mean			+ 0.045	−	2.50
Div., Flex., etc. .			. .	+	0.34

α CORONÆ BOREALIS.

	h.	m.	s.
Right Ascension. . .	15	29	16.135
North Polar Distance .	62°	51′	10″.32

1872.			s.		″
Feb.	1	E.	. .	+	1.3
May	21	Ha.	− 0.03	+	1.2
June	19	S.	− 0.04	+	1.3
July	2	E.	+ 0.02	+	0.4
	6	E.	+ 0.03	+	0.6
	8	Ha.	− 0.03	+	1.7
Dec.	3	S.	− 0.08	+	1.0
	5	F.	− 0.10	+	0.6
Mean			− 0.032	+	1.01
Div., Flex., etc. .			. .	−	0.30

α SERPENTIS.

	h.	m.	s.
Right Ascension. . .	15	37	57.837
North Polar Distance .	83°	10′	11″.10

1872.			s.		″
May	10	S.	+ 0.06	+	0.8
June	10	Ha.	+ 0.05	+	1.2
	26	Ha.	− 0.03	+	2.1
July	2	E.	+ 0.11	+	0.2
	8	Ha.	+ 0.01	+	0.8
	12	Ha.	+ 0.05	+	1.7
Oct.	10	E.	+ 0.05	+	2.0
Dec.	3	S.	− 0.04	+	1.2
	5	F.	− 0.06	+	1.3
Mean			+ 0.022	+	1.26
Div., Flex., etc. .			. .	−	0.32

ε SERPENTIS.

	h.	m.	s.
Right Ascension. . .	15	44	26.217
North Polar Distance .	85°	8′	6″.42

1872.			s.		″
June	11	S.	− 0.07	+	0.5
	13	F.	− 0.03	+	1.3
	26	Ha.	− 0.10	+	1.4
	28	E.	0.00	+	0.1
July	2	E.	+ 0.13	+	0.2
	6	E.	+ 0.06	+	0.7
	12	Ha.	+ 0.04	+	1.7
Oct.	10	E.	+ 0.20	+	2.7
Mean			+ 0.029	+	1.08
Div., Flex., etc. .			. .	−	0.39

ζ URSÆ MINORIS.

	h.	m.	s.
Right Ascension. . .	15	48	40.773
North Polar Distance .	11°	48′	46″.48

1872.			s.		″
June	28	E.	− 0.19	+	2.0
Div., Flex., etc. .			. .	−	0.30

ε CORONÆ BOREALIS.

	h.	m.	s.
Right Ascension. . .	15	52	17.413
North Polar Distance .	62°	44′	58″.76

1872.			s.		″
May	10	S.	− 0.10	+	1.6
Div., Flex., etc. .			. .	−	0.30

δ SCORPII.

	h.	m.	s.
Right Ascension. . .	15	52	46.062
North Polar Distance .	112°	15′	16″.99

1872.			s.		″
Jan.	22	S.	− 0.03	+	1.8
July	12	Ha.	− 0.01	+	0.6
Mean			− 0.010	+	1.20
Div., Flex., etc. .			. .	−	0.09

β^1 SCORPII.

	h.	m.	s.
Right Ascension. . .	15	57	59.787
North Polar Distance .	109°	27′	10″.33

1872.			s.		″
Jan.	22	S.	+ 0.07	−	0.8
May	6	S.	+ 0.07	−	1.9
	14	S.	− 0.03	−	1.1
June	11	S.	+ 0.04	−	0.3
July	10	E.	0.00	−	0.1
Mean			+ 0.030	−	0.84
Div., Flex., efc. .			. .	−	0.18

δ OPHIUCHI.

	h.	m.	s.
Right Ascension. . .	16	7	38.340
North Polar Distance .	93°	21′	44″.87

1872.			s.		″
July	1	S.	− 0.01	+	1.7
	6	E.	+ 0 06	+	2.5
	10	E.	+ 0.11	+	2.2
	26	E.	− 0.05	+	2.3
Nov.	7	E.	− 0.15	+	5.6
Mean			− 0.008	+	2.86
Div., Flex., etc. .			. .	−	0.61

τ HERCULIS.

	h.	m.	s.
Right Ascension. . .	16	15	53.519
North Polar Distance .	43°	22′	50″.55

1872.			s.		″
Jan.	25	S.	+ 0.17		. .
May	6	S.	+ 0.33	−	0.9
Nov.	7	E.	− 0.01	+	3.3
Mean			+ 0.197	+	1.20
Div., Flex., etc. .			. .	−	0.22

α SCORPII.

	h.	m.	s.
Right Ascension . .	16	21	33.748
North Polar Distance .	116°	8′	43″.43

1872.			s.		″
Jan.	1	S.	− 0.07		. .
	22	S.	− 0.05	+	1.0
May	6	S.	− 0.13	+	0.5
June	18	Ha.	− 0.07	+	0.1
July	10	E.	− 0.10	+	1.5
	26	E.	− 0.03	+	1.7
Sept.	16	S.	− 0.05		. .
Nov.	7	E.	− 0.12	+	5.0
Mean			− 0.078	+	1.13
Div., Flex., etc. .			. .	−	0.10

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ζ Ophiuchi.

Right Ascension . . . 16 h. 30 m. 6.728 s.

North Polar Distance . 100° 18′ 19.″07

1872.			s.		″
Jan.	1	S.	− 0.03		. .
May	6	S.	− 0.03	+	0.5
June	13	F.	+ 0.02	+	2.6
July	1	S.	− 0.04	+	2.9
	2	E.	− 0.06	+	3.1
	19	F.	− 0.09	+	2.7
Sept.	16	S.	− 0.11	+	3.2
Mean			− 0.049	+	2.50
Div., Flex., etc. .			. .	−	0.37

η Herculis.

Right Ascension. . . 16 h. 38 m. 30.499 s.

North Polar Distance . 50° 49′ 57.″53

1872.			s.		″
Jan.	1	S.	+ 0.08		. .
	11	E.	− 0.18	+	0.1
	21	S.	− 0.15	−	0.2
	25	S.	− 0.01		. .
April	25	E.	0.00	+	0.3
May	6	S.	− 0.06	+	0.4
July	1	S.	0.00	+	0.9
	5	S.	+ 0.06	+	0.7
	10	E.	+ 0.03	+	0.6
	19	F.	+ 0.09	+	1.6
	20	Ha.	+ 0.01	+	0.5
	24	Ha.	+ 0.08		. .
	26	E.	+ 0.01	+	2.6
Sept.	16	S.	− 0.02	+	1.9
Nov.	7	E.	− 0.03	+	3.7
Mean			− 0.006	+	1.09
Div., Flex., etc. .			. .	−	0.27

κ Ophiuchi.

Right Ascension. . . 16 h. 51 m. 36.573 s.

North Polar Distance . 80° 25′ 25.″51

1872.			s.		″
Jan.	11	E.	− 0.12	+	0.3
	21	S.	+ 0.11	−	0.1
Feb.	3	S.	+ 0.04		. .
April	25	E.	+ 0.09	−	0.4
May	30	S.	+ 0.07		. .
July	5	S.	+ 0.09		. .
	6	E.	+ 0.10	+	0.2
	20	Ha.	+ 0.10	+	0.9
	24	Ha.	+ 0.04		. .
	26	E.	+ 0.24	+	2.0
	31	F.	+ 0.02	+	2.3
Dec.	9	F.	+ 0.18	+	1.8
Mean			+ 0.080	+	0.88
Div., Flex., etc. .			. .	−	0.23

d Herculis.

Right Ascension. . . 16 h. 56 m. 52.699 s.

North Polar Distance . 56° 14′ 40.″50

1872.			s.		″
May	30	S.	+ 0.01	+	2.0
July	31	F.	+ 0.24	+	0.9
Mean			+ 0.125	+	1.45
Div., Flex., etc. .			. .	−	0.32

ε Ursæ Minoris.

Right Ascension. . . 16 h. 59 m. 10.049 s.

North Polar Distance . 7° 45′ 21.″42

1872.			s.		″
Feb.	3	S.	− 0.10		. .
July	2	E.	+ 0.23	−	0.3
	6	E.	− 0.30	−	0.2
	10	E.	+ 0.09		. .
	24	Ha.	+ 1.52		. .
	26	E.	− 1.96		. .
Mean			− 0.087	−	0.25
Div., Flex., etc. .			. .	−	0.39

ε Ursæ Minoris, S. P.

Right Ascension . . 16 h. 59 m. 10.049 s.

North Polar Distance . 352° 14′ 38.″58

1872.			s.		″
Nov.	16	F.	− 0.42		. .
Dec.	4	S.	− 0.64	−	1.0
	12	S.	+ 1.11		. .
Mean			+ 0.017	−	1.00
Div., Flex., etc. .			. .	−	0.02

ε Ursæ Minoris, (Ref.)

May	6	S.	. .	+	0.1

a^1 Herculis.

Right Ascension. . . 17 h. 8 m. 48.681 s.

North Polar Distance . 75° 27′ 42.″01

1872.			s.		″
Jan.	1	S.	+ 0.05		. .
	11	E.	− 0.10	−	1.0
	21	S.	+ 0.09	−	0.9
June	17	F.	+ 0.04	+	1.2
July	5	S.	+ 0.11		. .
	24	Ha.	+ 0.01		. .
	30	E.	+ 0.01	+	1.6
	31	F.	+ 0.05	+	2.1
Aug.	3	F.	+ 0.05	+	0.6
Nov.	7	E.	− 0.02	+	2.4
	8	F.	− 0.07	+	1.8
	15	E.	− 0.02	+	0.7
	19	E.	+ 0.12	+	3.4
	27	E.	− 0.02	+	1.2
Mean			+ 0.021	+	1.19
Div., Flex., etc. .			. .	−	0.08

44 Ophiuchi.

Right Ascension . . 17 h. 18 m. 33.260 s.

North Polar Distance . 114° 3′ 15.″76

1872.			s.		″
July	26	E.	− 0.09	+	2.0
	27	F.	− 0.05	+	0.7
	30	E.	+ 0.13		. .
Aug.	3.	F.	− 0.02	+	1.4
Mean			− 0.008	+	1.37
Div., Flex., etc. .			. .	−	0.07

β Draconis.

Right Ascension. . . 17 h. 27 m. 32.425 s.

North Polar Distance . 37° 36′ 11.″18

β Draconis—Continued.

1872.			s.		″
Jan.	1	S.	+ 0.12		. .
	19	E.	+ 0.01	−	1.3
Mar.	29	F.	+ 0.05	+	1.1
May	6	S.	+ 0, 02		0.0
	23	S.	− 0.02	−	0.3
Mean			+ 0.036	−	0.12
Div., Flex., etc. .			. .	−	0.13

α Ophiuchi.

Right Ascension. . . 17 h. 28 m. 59.571 s.

North Polar Distance . 77° 20′ 40.″72

1872.			s.		″
Jan.	1	S.	+ 0.03		. .
	19	E.	0.00	+	0.5
	21	S.	. .	−	0.4
June	11	S.	+ 0.08	+	1.1
July	12	Ha.	+ 0.01	+	1.0
	20	Ha.	0.00	+	1.1
	24	Ha.	+ 0.05		. .
	30	E.	− 0.01	+	0.5
Aug.	3	F.	+ 0.05	+	0.7
	7	E.	+ 0.19	+	2.0
Nov.	7	E.	− 0.01	+	2.7
	19	E.	+ 0.13	+	2.6
	27	E.	+ 0.06	+	2.1
Dec.	10	F.	+ 0.08	+	2.4
Mean			+ 0.051	+	1.36
Div., Flex., etc. .			. .	−	0.13

ω Draconis.

Right Ascension. . . 17 h. 37 m. 42.187 s.

North Polar Distance . 21° 11′ 1.″08

1872.			s.		″
July	12	Ha.	− 0.01	−	1.7
	20	Ha.	− 0.09	−	2.3
Mean			− 0.050	−	2.00
Div., Flex., etc. .			. .	−	0.25

μ Herculis.

Right Ascension. . . 17 h. 41 m. 26.977 s.

North Polar Distance . 62° 12′ 9.″31

1872.			s.		″
Jan.	1	S.	+ 0.10		. .
	19	E.	− 0.05	+	1.0
	24	F.	− 0.05	+	0.2
May	23	S.	+ 0.02	+	1.2
June	11	S.	− 0.03	+	1.4
	18	Ha.	+ 0.05	+	1.4
July	8	Ha.	+ 0.09	+	0.5
	12	Ha.	+ 0.02	+	1.3
	20	Ha.	+ 0.04	+	0.3
	30	E.	+ 0.03	+	0.8
Aug.	3	E.	+ 0.03	+	0.2
	7	E.	+ 0.01	+	4.5
Nov.	15	E.	− 0.15	−	0.1
	19	E.	+ 0.10	+	3.7
	23	E.	− 0.02	+	5.0
	27	E.	+ 0.03	+	2.8
Dec.	2	F.	− 0.01	+	2.3
Mean			+ 0.012	+	1.66
Div., Flex., etc. .			. .	−	0.30

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ψ^1 Draconis, S. P.

	h.	m.	s.
Right Ascension . .	17	44	13.131
North Polar Distance .	342°	12′	39″.73

1872.			s.		″
Jan.	12	E.	+ 0.31	—	1.2
Div., Flex., etc. .			. .	+	0.33

γ Draconis.

	h.	m.	s.
Right Ascension. . .	17	53	38.189
North Polar Distance .	38°	29′	42″.79

1872.			s.		″
Jan.	1	S.	— 0.04		. .
	19	E,	— 0.49		. .
	21	S.	— 0.03	—	1.6
	24	F.	— 0.30	—	0.8
	25	S.	— 0.05	—	1.1
	29	S.	— 0.19	+	0.7
	31	E.	— 0.25	+	0.1
July	12	Ha.	— 0.54	+	0.5
Nov.	23	E.	+ 0.02	+	1.4
Mean			— 0.208	—	0.11
Div., Flex., etc. .			. .	—	0.11

γ^2 Sagittarii.

	h.	m.	s.
Right Ascension . .	17	57	35.167
North Polar Distance .	120°	25′	22″.44

1872.			s.		″
Mar.	29	F.	— 0.34	+	0.1
June	17	F.	— 0.03	+	0.4
	18	Ha.	— 0.07	—	0.7
July	1	S.	— 0.10	—	0.9
	8	Ha.	+ 0.01	—	1.7
	20	Ha.	— 0.08	—	1.8
	24	Ha.	+ 0.04		. .
Aug.	17	Ha.	+ 0.13	—	0.8
	21	Ha.	— 0.09	—	0.6
Nov.	4	F.	— 0.08	+	0.3
Mean			— 0.095	—	0.63
Div., Flex., etc. .			. .	—	0.05

μ^1 Sagittarii.

	h.	m.	s.
Right Ascension . .	18	6	6.512
North Polar Distance .	111°	5′	22″.62

1872.			s.		″
May	26	S.	0.00	+	1.0
June	11	S.	+ 0.03	—	0.1
July	12	Ha.	0.00	+	0.5
	19	F.	— 0.10		. .
	29	Ha.	— 0.01		. .
Aug.	17	Ha.	— 0.05	—	0.6
	21	Ha.	+ 0.08	+	1.0
Mean			— 0.007	+	0.36
Div., Flex., etc. .			. .	—	0.14

δ Ursæ Minoris.

	h.	m.	s.
Right Ascension. . .	18	13	37.558
North Polar Distance .	3°	23′	36″.17

1872.			s.		″
Jan.	11	E.	— 0.67	—	2.6
	19	E.	. .	—	0.6

δ Ursæ Minoris—Continued.

1872.			s.		″
Jan.	21	S.	— 1.25		. .
	24	F.	— 0.01		. .
	25	S.	— 1.61		. .
	31	E.	— 0.83		. .
Mar.	29	F.	+ 0.31	—	3.0
May	6	S.	— 0 91	+	0.8
	23	S.	— 0.09	+	0.4
	26	S.	— 1.60		. .
June	11	S.	+ 0.69	+	0.3
	17	F.	— 0.23	+	0.1
	18	Ha.	. .	+	1.1
July	30	E.	— 0.65	+	0.8
Aug.	3	E.	+ 2 25	—	0.6
	6	Ha.	— 1.39		. .
	7	E.	. .	—	0.1
	17	Ha.	. .	—	0.8
	21	Ha.	. .	+	0.2
	26	S.	. .	+	0.3
	30	S.	. .	+	0.5
Nov.	15	E.	— 1.37		. .
	19	E.	— 0.40	+	1.1
	23	E.	+ 1.66	—	0.8
Dec.	10	F.	+ 0.19	—	1.3
	14	F.	— 1.51		. .
Mean			— 0.380	+	0.04
Div., Flex., etc. .			. .	—	0.48

δ Ursæ Minoris, S. P.

	h.	m.	s.
Right Ascension . .	18	13	37.558
North Polar Distance .	356°	36′	23″.83

1872.			s.		″
Jan.	5	F.	+ 3.08	+	0.1
	12	E.	— 0.68	—	0.3
	17	F.	— 0.98		0.0
	22	S.	— 0.17		. .
Feb.	7	S.	. .	—	0.1
	19	S.	— 0.69	+	1.3
	20	Ha.	. .	+	0.7
	23	S.	— 0.37	+	0.6
Mar.	6	S.	— 0.62	—	0.2
	16	E.	+ 0.23	—	0.9
	18	S.	— 0.09		. .
	20	F.	— 0.36	+	0.2
April	13	E.	— 1.62		. .
	14	F.	— 1.25	+	0.2
Aug.	2	E.	+ 2.46	—	2.2
Nov.	16	F.	— 0.12		0.0
Dec.	2	F.	— 0.72	—	0.6
	13	E.	— 0.35		0.0
	22	F.	+ 0.12		. .
	23	E.	— 0.22	+	0.4
	24	S.	— 0.27		. .
Mean			— 0.142	—	0.05
Div., Flex., etc. .			. .	—	0.18

η Serpentis.

	h.	m.	s.
Right Ascension. . .	18	14	41.148
North Polar Distance .	92°	55′	46″.54

1872.			s.		″
Mar.	9	F.	0.00	+	1.9
July	29	Ha.	+ 0.13		. .
Nov.	4	F.	+ 0.14	+	2.7
Mean			+ 0.090	+	2.30
Div., Flex., etc. .			. .	—	0.61

1 Aquilæ.

	h.	m.	s.
Right Ascension. . .	18	28	14.433
North Polar Distance .	98°	19′	51″.77

1 Aquilæ—Continued.

1872.			s.		″
Mar.	29	F.	— 0.05	+	1.2
	31	Ha.	+ 0.07	+	0.8
May	6	S.	+ 0.17	+	0.6
	26	S.	+ 0.04	+	2.5
June	11	S.	+ 0.08	+	0.8
	17	F.	+ 0.04	+	1.6
	18	Ha.	+ 0.09	+	0.4
Aug.	3	E.	+ 0.18	+	1.3
	6	Ha.	+ 0.09		. .
	7	E.	+ 0.08	+	1.4
	23	S.	+ 0.09	+	1.1
	26	S.	+ 0.10	+	1.9
	30	S.	+ 0.07	+	2.9
Mean			+ 0.081	+	1.38
Div., Flex., etc. .			. .	—	0.46

α Lyræ.

	h.	m.	s.
Right Ascension . .	18	32	36.275
North Polar Distance .	51°	20′	2″.75

1872.			s.		″
Jan.	8	F.	0.00	—	0.4
	11	E.	— 0.02	—	0.8
	19	E.	— 0.05	+	0.5
	24	F.	— 0.01	+	0.6
	25	S.	+ 0.01	—	1.0
	29	S.	— 0.01	+	0.3
	31	E.	— 0.20	—	0.2
Feb.	4	E.	— 0.20	—	0.7
May	6	S.	— 0.01	+	0.8
	23	S.	+ 0.07	+	0.4
June	17	F.	+ 0.06	+	0.6
July	8	Ha.	— 0.04	—	0.3
	29	Ha.	+ 0.03		. .
Aug.	3	E.	+ 0.09	—	0.3
	6	Ha.	+ 0.01		. .
	26	S.	— 0.03	—	0.4
Nov.	4	F.	+ 0.10	+	1.8
	23	E.	+ 0.09	+	1.9
Dec.	6	F.	+ 0.04	—	2.4
	13	E.	— 0.06	—	0.7
	14	F.	+ 0.03	+	0.9
Mean			— 0.048	+	0.03
Div., Flex., etc. .			. .	—	0.30

β Lyræ.

	h.	m.	s.
Right Ascension. . .	18	45	21.240
North Polar Distance .	56°	47′	4″.06

1872.			s.		″
Jan.	11	E.	— 0.07	—	0.9
	19	E.	+ 0.07	+	0.1
	29	S.	— 0.01	+	0.2
Mar.	29	F.	— 0.05	+	0.4
July	26	Ha.	+ 0.12		. .
	28	Ha.	+ 0.06		. .
	29	Ha.	— 0.01		. .
Aug.	3	E.	+ 0.14	+	0.4
	6	Ha.	+ 0.05		. .
Nov.	23	E.	+ 0.08	+	1.8
Dec.	6	F.	— 0.02	—	0.8
	10	F.	+ 0.13	+	0.6
	13	E.	— 0.08	—	2.8
Mean			+ 0.032	—	0.11
Div., Flex., etc. .			. .	—	0.32

σ Sagittarii.

	h.	m.	s.
Right Ascension . .	18	47	19.669
North Polar Distance .	116°	27′	10″.05

1872.			s.
Aug.	6	Ha.	— 0.06

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ζ Aquilæ.

	h.	m.	s.
Right Ascension. . .	18	59	31.540

	°	′	″
North Polar Distance .	76	19	29.08

1872.				s.		″
Jan.	8	F.	+	0.21	−	0.2
	19	E.	+	0.10	−	0.2
	25	S.	+	0.22	+	0.8
	31	E.	−	0.03	+	1.2
Mar.	31	Ha.	+	0.08	+	0.6
May	23	S.	−	0.07	−	0.2
July	22	E.	+	0.18	+	0.9
	23	F.	+	0.10	+	1.2
	26	Ha.	+	0.09		. .
	28	Ha.	+	0.12		. .
	29	Ha.	+	0.11		. .
	30	E.	−	0.08	+	0.7
Aug.	6	Ha.	+	0.11		. .
	23	S.	+	0.10	+	1.2
	30	S.	+	0.07	+	2.7
Sept.	3	S.	+	0.09	+	0.5
Dec.	6	F.	+	0.08	−	0.7
	10	F.	+	0.15	+	0.8
Mean			+	0.091	+	0.66
Div., Flex., etc. .				. .	−	0.11

d Sagittarii.

	h.	m.	s.
Right Ascension. . .	19	10	8.666

	°	′	″
North Polar Distance .	109	10	38.87

1872.				s.		″
May	23	S.	+	0.10	+	2.3
July	1	S.	−	0.04	+	3.2
	19	F.	−	0.03	+	1.3
	22	E.	−	0.06	+	2.9
	23	F.	+	0.10	+	3.0
	27	F.	+	0.05	+	2.7
	28	Ha.	+	0.06		. .
	29	Ha.	+	0.04		. .
Mean			+	0.028	+	2.57
Div., Flex., etc. .				. .	−	0.19

δ Draconis.

	h.	m.	s.
Right Ascension. . .	19	12	31.173

	°	′	″
North Polar Distance .	22	33	49.56

1872.				s.		″
Jan.	11	E.	−	0.05	−	3.2
	19	E.	+	0.09		0.0
	25	S.	+	0.09	−	0.7
	31	E.	−	0.06	+	1.0
July	26	Ha.	−	0.08		. .
Mean			−	0.002	+	0.72
Div., Flex., etc. .				. .	−	0.21

δ Draconis, S. P.

	h.	m.	s.
Right Ascension. . .	19	12	31.173

	°	′	″
North Polar Distance .	337	26	10.44

1872.				s.		″
Mar.	19	Ha.	−	0.02	+	1.2
Div., Flex., etc. .				. .	+	0.45

τ Draconis, S. P.

	h.	m.	s.
Right Ascension. . .	19	18	0.039

	°	′	″
North Polar Distance .	346	7	0.99

1872.				s.		″
Nov.	18	S.	+	0.26	−	1.1
Div., Flex., etc. .				. .	+	0.26

δ Aquilæ.

	h.	m.	s.
Right Ascension. . .	19	19	2.609

	°	′	″
North Polar Distance .	87	8	17.68

1872.				s.		″
July	19	F.	−	0.06	−	0.6
	22	E.	+	0.10	+	0.2
	28	Ha.	+	0.12		. .
	29	Ha.	+	0.07		. .
	30	E.	+	0.15	+	0.3
	31	F.	+	0.05	+	0.3
Aug.	3	E.		0.00	−	0.1
	6	Ha.	+	0.10		. .
	7	E.		0.00	+	1.2
	17	Ha.	+	0.09	−	0.1
	30	S.	+	0.10	+	2.1
Sept.	18	F.	+	0.11	+	1.8
	28	E.	+	0.02	+	1.4
Mean			+	0.065	+	0.65
Div., Flex., etc. .				. .	−	0.39

κ Aquilæ.

	h.	m.	s.
Right Ascension. . .	19	30	0.232

	°	′	″
North Polar Distance .	97	18	34.27

1872.				s.		″
July	1	S.	+	0.05		. .
	19	F.	−	0.11	+	1.0
	22	E.	−	0.12	+	0.4
	23	F.	+	0.11	+	2.4
	26	Ha.	+	0.03		. .
	28	Ha.	+	0.07		. .
	29	Ha.	+	0.02		. .
Aug.	3	E.		0.00	+	0.2
	17	Ha.	+	0.06	+	2.4
Sept.	3	S.	+	0.04	−	1.0
	28	E.	+	0.12	+	2.1
Mean			+	0.025	+	1.07
Div., Flex., etc. .				. .	−	0.46

γ Aquilæ.

	h.	m.	s.
Right Ascension. . .	19	40	10.438

	°	′	″
North Polar Distance .	79	41	48.45

1872.				s.		″
Jan.	28	F.		. .	−	1.0
	29	S.	+	0.22	+	1.6
	31	E.		. .	+	0.1
Feb.	4	E.	+	0.11	−	1.0
	21	F.	−	0.02	+	1.1
Mar.	31	Ha.	+	0.02	+	0.2
July	23	F.	+	0.05	+	0.1
	26	Ha.	−	0.01		. .
	27	F.	+	0.03	+	0.6
	28	Ha.	−	0.02		. .
	29	Ha.	−	0.06		. .
	31	F.	+	0.01		. .
Aug.	9	Ha.	+	0.10		. .
	17	Ha.	+	0.06	+	0.7
	23	S.	−	0.01	+	0.2
	26	S.	+	0.05	+	1.0
	30	S.	+	0.11	+	0.9
Sept.	3	S.	−	0.03	−	0.8
	14	F.	+	0.03	+	3.1
	16	S.	+	0.20		. .
	21	S.	+	0.02	−	0.3
	24	S.	+	0.05		. .
	28	E.	+	0.01	+	0.6
Oct.	9	S.	−	0.01		. .
	14	E.	+	0.08	+	1.8
Dec.	13	E.	+	0.03	−	1.0
	14	F.	−	0.01	+	0.8
Mean			+	0.040	+	0.46
Div., Flex., etc. .				. .	−	0.18

α Aquilæ.

	h.	m.	s.
Right Ascension. . .	19	44	32.244

	°	′	″
North Polar Distance .	81	28	4.20

1872.				s.		″
Jan.	24	F.	+	0.14	−	0.3
	28	F.		. .	−	1.0
	31	E.	−	0.12	+	0.5
Feb.	1	F.		. .	+	0.3
	4	E.	+	0.08	−	0.2
	13	F.	−	0.05	+	1.4
	21	F.	+	0.04	+	1.0
	25	F.	−	0.06	+	1.1
Mar.	4	E.		. .	+	0.1
	31	Ha.	+	0.05	−	0.1
July	1	S.	+	0.07		0.0
	19	F.	+	0.02	−	1.5
	22	E.	+	0.06	−	0.8
	26	Ha.	−	0.02		. .
	27	F.	+	0.06	+	0.2
	28	Ha.	−	0.05		. .
	31	F.	+	0.05	+	0.4
Aug.	9	Ha.	+	0.02		. .
Sept.	3	S.	+	0.02		. .
	16	S.	+	0.12	+	0.1
	18	F.	−	0.04	+	1.1
	21	S.	+	0.03	+	0.7
	24	S.	+	0.05		. .
	28	E.		0.00	+	1.7
Oct.	9	S.	−	0.09	+	1.5
	14	E.	+	0.05	−	1.5
Dec.	6	F.	+	0.03	−	1.9
	13	E.	−	0.03	+	0.7
	14	F.	+	0.04	+	0.2
Mean			+	0.018	+	0.15
Div., Flex., etc. .				. .	−	0.23

β Aquilæ.

	h.	m.	s.
Right Ascension. . .	19	49	1.510

	°	′	″
North Polar Distance .	83	54	39.67

1872.				s.		″
Feb.	13	F.	+	0.07	+	1.4
July	1	S.	+	0.01	+	0.8
	19	F.	−	0.08	−	0.5
	22	E.		. .	+	0.2
	31	F.	+	0.03	+	1.0
Aug.	9	Ha.	+	0.04		. .
	23	S.	+	0.03	+	0.3
Sept.	21	S.	+	0.05	+	0.8
	24	S.	+	0.04		. .
Oct.	9	S.	+	0.07	+	2.3
	14	E.	−	0.03	+	2.2
Dec.	13	E.	+	0.02	+	1.4
	14	F.	−	0.04	+	0.5
Mean			+	0.018	+	0.95
Div., Flex., etc. .				. .	−	0.34

λ Ursæ Minoris.

	h.	m.	s.
Right Ascension. . .	19	52	18.360

	°	′	″
North Polar Distance .	1	4	37.06

1872.				s.		″
July	1	S.	−	0.80	−	0.6
	19	F.	−	7.29(*r*)	−	1.8
	22	E.		. .	−	0.3
	27	F.		. .	+	0.3
	31	F.		. .	−	0.9
Sept.	3	S.	−	0.23		. .
	16	S.		. .	+	0.3
	24	S.		. .	+	0.5
	28	E.		. .	−	0.9
Oct.	9	S.		. .	−	0.2
	14	E.		. .	−	1.9
Mean			−	0.515	−	0.55
Div., Flex., etc. .				. .	−	0.31

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λ Ursæ Minoris, S. P.

Right Ascension . . . 19h 52m 18.360s

North Polar Distance . 358° 55′ 22.″94

1872.			s.		″
Jan.	22	S.	. .	+	0.2
	25	F.	− 0.70		. .
Feb.	14	F.	. .	+	0.3
	21	E.	. .	+	1.6
	22	F.	− 4.57	+	1.5
	26	F.	− 3.10	+	0.2
Mar.	5	F.	+ 1.17	−	0.4
	12	E.	+ 1.13		0.0
	16	E.	+ 1.69		0.0
	19	Ha.	. .	+	2.0
	20	F.	+ 0.15	+	2.1
	21	E.	+ 1.36	+	1.4
	24	E.	. .	+	1.8
	27	Ha.	. .	+	0.9
April	1	F.	+ 2.05	+	0.8
	2	E.	− 0.65	+	2.9
	10	F.	− 2.55	+	0.4
	13	E.	− 0.29		. .
Nov.	18	S.	+ 0.45	+	1.8
Mean			− 0.297	+	1.03
Div., Flex., etc. .			. .	−	0.17

τ Aquilæ.

Right Ascension . . . 19h 57m 53.200s

North Polar Distance . 83° 4′ 52.″78

1872.			s.		″
July	30	Ha.	0.00		. .
Sept.	3	S.	+ 0.01	+	0.4
Mean			+ 0.005	+	0.40
Div., Flex., etc. .			. .	−	0.32

a^2 Capricorni.

Right Ascension . . . 20h 10m 57.036s

North Polar Distance . 102° 56′ 22.″31

1872.			s.		″
April	29	E.	+ 0.06	−	1.9
May	26	S.	+ 0.13	+	1.3
July	30	Ha.	+ 0.03		. .
	31	Ha.	+ 0.02	−	0.2
Aug.	9	Ha.	+ 0.04		. .
Sept.	19	F.	+ 0.08	+	1.2
Dec.	14	F.	+ 0.19	−	1.2
Mean			+ 0.079	−	0.16
Div., Flex., etc. .			. .	−	0.30

π Capricorni.

Right Ascension . . . 20h 19m 59.541s

North Polar Distance . 108° 37′ 44.″87

1872.			s.		″
July	23	Ha.	+ 0.04	+	1.6
	25	Ha.	− 0.06		. .
	27	Ha.	− 0.13	+	0.4
	30	Ha.	+ 0.08		. .
	31	Ha.	0.00	−	1.3
Aug.	9	Ha.	− 0.02		. .
	21	Ha.	+ 0.01	+	2.3
Sept.	14	F.	+ 0.02	+	2.6
	19	F.	− 0.02	+	0.6
Nov.	1	S.	+ 0.14	+	1.8
Mean			− 0.006	+	1.14
Div., Flex., etc. .			. .	−	0.20

ε Delphini.

Right Ascension . . . 20h 27m 5.823s

North Polar Distance . 79° 7′ 48.″37

1872.			s.		″
Jan.	2	S.	− 0.01		. .
April	1	F.	+ 0.09	+	0.5
July	23	Ha.	0.00	+	0.4
	27	Ha.	+ 0.09	−	0.4
	30	Ha.	+ 0.04		. .
	31	Ha.	+ 0.02	−	1.6
Aug.	9	Ha.	+ 0.06		. .
	21	Ha.	+ 0.07	+	0.2
Sept.	14	F.	+ 0.06	+	1.9
Nov.	1	S.	+ 0.10	+	0.9
Dec.	14	F.	+ 0.03	−	2.7
Mean			+ 0.050	+	0.25
Div., Flex., etc. .			. .	−	0.16

Groombridge 3241.

Right Ascension . . . 20h 30m 32.5517s

North Polar Distance . 17° 54′ 7.″35

1872.			s.		″
July	23	Ha.	− 0.05	+	1.0
Div., Flex., etc. .			. .	−	0.29

Groombridge 3241, S. P.

Right Ascension . . . 20h 30m 32.5517s

North Polar Distance . 342° 5′ 52.″65

1872.			s.		″
Mar.	27	Ha.	+ 0.17	+	1.1
Div., Flex., etc. .			. .	+	0.33

α Cygni.

Right Ascension . . . 20h 37m 4.104s

North Polar Distance . 45° 10′ 33.″90

1872.			s.		″
Jan.	2	S.	+ 0.10		. .
	12	E.	+ 0.05	−	0.3
Feb.	13	F.	− 0.04	+	1.0
	21	F.	+ 0.03	−	0.5
Mar.	4	F.	− 0.02	−	0.1
April	1	F.	− 0.01	+	2.0
	29	E.	− 0.30	+	0.3
July	23	Ha.	+ 0.01	+	0.3
	25	Ha.	+ 0.19		. .
Dec.	13	E.	− 0.04	−	1.7
Mean			− 0.003	+	0.12
Div., Flex., etc. .			. .	−	0.22

μ Aquarii.

Right Ascension . . . 20h 45m 44.855s

North Polar Distance . 99° 27′ 41.″86

1872.			s.		″
April	1	F.	− 0.16	+	0.1
July	23	Ha.	+ 0.06	+	1.5
	25	Ha.	+ 0.08		. .
	27	Ha.	+ 0.20	+	0.7
	31	Ha.	+ 0.14	−	0.4
Aug.	21	Ha.	+ 0.09	+	3.1
Mean			+ 0.068	+	1.00
Div., Flex., etc. .			. .	−	0.42

ν Cygni.

Right Ascension . . . 20h 52m 24.080s

North Polar Distance . 49° 19′ 27.″33

1872.			s.		″
Jan.	2	S.	+ 0.17		. .
July	25	Ha.	+ 0.14		. .
	27	F.	+ 0.02	+	1.9
Aug.	9	Ha.	+ 0.07		. .
Mean			+ 0.012	+	1.90
Div., Flex., etc. .			. .	−	0.16

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Right Ascension . . . 20h 53m 19.060s

North Polar Distance . 350° 4′ 14.″39

1872.			s.		″
April	2	E.	+ 0.13	−	2.4
Div., Flex., etc. .			. .	+	0.11

61¹ Cygni.

Right Ascension . . . 21h 1m 9.671s

North Polar Distance . 51° 52′ 43.″24

1872.			s.		″
July	23	F.	− 0.23	+	1.8
Div., Flex., etc. .			. .	−	0.34

ζ Cygni.

Right Ascension . . . 21h 7m 29.327s

North Polar Distance . 60° 17′ 48.″76

1872.			s.		″
Jan.	2	S.	+ 0.01		. .
	5	F.	+ 0.01	+	1.4
	12	E.	+ 0.01	+	1.2
	20	E.	+ 0.10	+	2.2
	21	F.	+ 0.07	+	0.8
Mar.	6	S.	− 0.06		. .
	15	E.	+ 0.10	−	0.3
May	27	E.	+ 0.06	+	0.2
	28	F.	+ 0.06	+	1.4
July	23	F.	− 0.14	+	0.5
	25	Ha.	0.00		. .
Sept.	14	F.	+ 0.01	+	1.8
	19	F.	+ 0.07	+	1.9
Oct.	21	S.	+ 0.03	+	1.1
Nov.	7	E.	+ 0.20	+	0.2
	15	E.	+ 0.07	−	0.6
	23	E.	+ 0.11	+	1.8
Mean			+ 0.041	+	0.97
Div., Flex., etc. .			. .	−	0.31

α Cephei.

Right Ascension . . . 21h 15m 31.391s

North Polar Distance . 27° 57′ 23.″79

1872.			s.		″
Jan.	2	S.	− 0.04		. .
	5	F.	+ 0.01	−	2.0
	9	F.	− 0.07	−	4.2
	20	E.	− 0.13		0.0
	21	F.	− 0.23	−	1.7
Mar.	15	E.	+ 0.02	−	1.6
May	28	F.	+ 0.05	−	0.3
Aug.	2	Ha.	− 0.05		. .
Mean			− 0.055	−	1.63
Div., Flex., etc. .			. .	−	0.29

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α Cephei, (Ref.)

1872.				″
Oct.	21	S.	+	0.2

1 Pegasi.

	h.	m.	s.
Right Ascension. . .	21	16	10.087
North Polar Distance .	70°	44′	29″.72

1872.			s.	″
Jan.	12	E.	— 0.04	+ 2.7
Div., Flex., etc. .			. .	— 0.09

β Aquarii.

	h.	m.	s.
Right Ascension. . .	21	24	49.161
North Polar Distance .	96°	7′	57″.61

1872.			s.	″
Jan.	2	S.	— 0.04	. .
	12	E.	+ 0.09	+ 2.4
Mar.	15	E.	+ 0.09	+ 1.7
April	29	E.	+ 0.10	+ 0.5
May	26	S.	— 0.04	+ 1.8
	27	E.	+ 0.05	+ 1.0
	28	F.	— 0.01	+ 0.5
Aug.	2	Ha.	— 0.10	. .
Nov.	15	E.	0.00	+ 0.9
	23	E.	+ 0.10	+ 3.6
	27	S.	. .	+ 1.1
Mean			+ 0.024	+ 1.50
Div., Flex., etc. .			. .	— 0.49

β Cephei.

	h.	m.	s.
Right Ascension. . .	21	26	59.960
North Polar Distance .	20°	0′	4″.51

1872.			s.	″
Jan.	2	S.	+ 0.09	. .
	5	F.	+ 0.16	— 1.0
	9	F.	— 0.26	0.0
	12	E.	— 0.06	— 1.5
May	28	F.	— 0.05	+ 0.1
Sept.	6	S.	+ 0.48	. .
Mean			+ 0.060	+ 0.60
Div., Flex., etc. .			. .	+ 0.27

β Cephei, S. P.

	h.	m.	s.
Right Ascension. . .	21	26	56.960
North Polar Distance .	339°	59′	55″.49

1872.			s.	″
April	16	S.	— 0.31	+ 1.1
Nov.	20	F.	+ 0.01	. .
Mean			— 0.150	+ 1.10
Div., Flex., etc. .			. .	+ 0.38

β Cephei, (Ref.)

Oct.	29	S.	. .	— 3.8

ξ Aquarii.

	h.	m.	s.
Right Ascension. . .	21	30	56.163
North Polar Distance .	98°	25′	36″.31

ξ Aquarii—Continued.

1872.			s.	″
May	28	F.	+ 0.14	— 0.2
Aug.	2	Ha.	+ 0.05	. .
Sept.	16	S.	+ 0.01	— 0.1
Oct.	31	F.	+ 0.03	+ 2.2
Mean			+ 0.058	+ 0.63
Div., Flex., etc. .			. .	— 0.46

ε Pegasi.

	h.	m.	s.
Right Ascension. . .	21	37	53.976
North Polar Distance .	80°	42′	37″.97

1872.			s.	″
Jan.	2	S.	— 0.06	. .
	5	F.	+ 0.03	+ 0.1
	9	F.	— 0.08	+ 1.4
	12	E.	— 0.01	+ 1.0
Feb.	21	F.	+ 0.05	+ 0.7
	26	S.	+ 0.02	— 0.7
Mar.	4	F.	+ 0.06	— 0.6
	17	S.	. .	— 0.2
	20	E.	— 0.02	+ 1.1
	27	E.	— 0.07	— 1.6
April	16	E.	— 0.13	+ 0.5
	29	E.	— 0.08	+ 0.8
May	26	S.	+ 0.02	+ 1.5
	27	E.	— 0.02	— 0.1
	28	F.	. .	— 0.6
Aug.	2	Ha.	+ 0.06	. .
Sept.	14	F.	— 0.01	+ 1.3
	16	S.	+ 0.03	0.0
Nov.	23	E.	+ 0.05	+ 4.6
Mean			— 0.009	+ 0.54
Div., Flex., etc. .			. .	— 0.25

ε Pegasi, (Ref.)

1872.				″
Oct.	21	S.	. .	+ 1.8

11 Cephei.

	h.	m.	s.
Right Ascension. . .	21	40	2.362
North Polar Distance .	19°	16′	40″.47

			s.	
Aug.	2	Ha.	+ 0.32	. .

11 Cephei, (Ref.)

1872.				″
Oct.	29	S.	. .	+ 11.6

μ Capricorni.

	h.	m.	s.
Right Ascension. . .	21	46	18.936
North Polar Distance .	104°	9′	9″.45

1872.			s.	″
Aug.	2	Ha.	+ 0.06	. .
Sept.	14	F.	+ 0.06	+ 3.0
Nov.	7	E.	+ 0.05	+ 2.8
	8	F.	+ 0.01	+ 2.6
	15	E.	— 0.03	+ 1.9
	20	F.	+ 0.03	+ 1.7
	23	E.	+ 0.03	+ 3.2
Mean			+ 0.030	+ 2.53
Div., Flex., etc. .			. .	— 0.29

79 Draconis, S. P.

	h.	m.	s.
Right Ascension . .	21	51	16.440
North Polar Distance .	343°	5′	48″.32

1872.			s.	″
April	16	S.	— 0.11	— 0.1
Nov.	18	S.	+ 0.43	— 1.6
Mean			+ 0.160	— 0.85
Div., Flex., etc. .			. .	+ 0.35

79 Draconis, (Ref.)

1872.				″
Oct.	21	S.	. .	— 1.4
Nov.	1	S.	. .	— 0.8
Mean			. .	— 1.20

α Aquarii.

	h.	m.	s.
Right Ascension. . .	21	59	12.529
North Polar Distance .	90°	56′	25″.99

1872.			s.	″
Jan.	9	F.	+ 0.02	+ 1.5
Mar.	20	E.	+ 0.04	0.0
May	28	F.	— 0.09	+ 1.4
Aug.	30	S.	+ 0.08	+ 0.4
Sept.	3	S.	+ 0.04	— 0.1
	19	F.	+ 0.03	+ 0.8
Nov.	7	E.	+ 0.07	+ 0.6
	20	F.	+ 0.08	— 0.4
Mean			+ 0.034	+ 0.52
Div., Flex., etc. .			. .	— 0.47

α Aquarii, (Ref.)

1872.			s.	″
Nov.	23	E.	0.00	0.0

θ Aquarii.

	h.	m.	s.
Right Ascension. . .	22	10	4.679
North Polar Distance .	98°	25′	10″.42

1872.			s.	″
May	27	E.	— 0.02	+ 0.2
Sept.	14	F.	+ 0.02	+ 2.1
	19	F.	+ 0.01	+ 0.5
Oct.	21	S.	+ 0.09	— 0.2
	31	F.	+ 0.06	+ 0.9
Nov.	23	E.	+ 0.05	+ 1.7
Mean			+ 0.035	+ 0.87
Div., Flex., etc. .			. .	— 0.46

π Aquarii.

	h.	m.	s
Right Ascension. . .	22	18	44.374
North Polar Distance .	89°	16′	16″.30

1872.			s.	″
Sept.	19	F.	— 0.01	+ 0.7
Nov.	23	E.	+ 0.14	+ 1.5
Mean			+ 0.065	+ 1.10
Div., Flex., etc. .			. .	— 0.38

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η Aquarii.

	h.	m.	s.
Right Ascension. . .	22	28	46.687
North Polar Distance .	90°	46′	34″.83

1872.			s.		″
May	28	F.	+ 0.10	+	0.9
Aug.	30	S.	+ 0.11		. .
Sept.	3	S.	+ 0.07	—	1.5
Oct.	29	S.	+ 0.05	+	1.0
Nov.	7	E.	+ 0.11	+	1.0
	12	F.	+ 0.07	+	1.4
	15	E.	+ 0.07	—	1.3
Dec.	6	S.	+ 0.01	+	1.3
Mean			+ 0.074	+	0.40
Div., Flex., etc. .			. .	—	0.46

226 Cephei.

	h.	m.	s.
Right Ascension . .	22	30	1.093
North Polar Distance .	14°	25′	59″.66

1872.			s.		″
Nov.	23	E.	+ 0.08	—	0.4
Div., Flex., etc. .			. .	—	0.30

ζ Pegasi.

	h.	m.	s.
Right Ascension. . .	22	35	4.649
North Polar Distance .	79°	50′	9″.14

1872.			s.		″
Aug.	2	Ha.	+ 0.02		. .
Nov.	1	S.	+ 0.12	+	0.1
	7	E.	+ 0.14	+	1.3
	12	F.	+ 0.14	+	1.9
	15	E.	+ 0.12	—	1.0
	23	E.	+ 0.04	+	1.3
Dec.	6	S.	+ 0.04	+	1.8
Mean			+ 0.089	+	0.90
Div., Flex., etc. .			. .	—	0.19

ι Cephei.

	h.	m.	s.
Right Ascension. . .	22	45	7.643
North Polar Distance .	24°	28′	21″.24

1872.			s.		″
Nov.	23	E.	+ 0.78	+	0.1
Div., Flex., etc. .			. .	—	0.23

ι Cephei, S. P.

	h.	m.	s.
Right Ascension . .	22	45	7.643
North Polar Distance .	335°	31′	38″.76

1872.			s.		″
April	5	E.	+ 0.26	+	0.3
	29	E.	+ 0.03	—	0.2
Mean			+ 0.145	+	0.05
Div., Flex., etc. .			. .	+	0.37

ι Cephei, (Ref.)

1872.			s.		″
Nov.	7	E.	+ 0.62	—	1.7

λ Aquarii.

	h.	m.	s.
Right Ascension. . .	22	45	56.083
North Polar Distance .	98°	15′	35″.33

1872.			s.		″
July	8	S.	+ 0.12		0.0
Aug.	2	Ha.	+ 0.14		. .
	30	S.	+ 0.09	+	0.4
Oct.	29	S.	+ 0.07	+	1.7
Nov.	15	E.	+ 0.18	—	0.5
Mean			+ 0.120	+	0.40
Div., Flex., etc. .			. .	—	0.46

α Piscis Australis.

	h.	m.	s.
Right Ascension. . .	22	50	34.389
North Polar Distance .	120°	17′	59″.18

1872.			s.		″
Jan.	13	F.	+ 0.05		. .
Feb.	5	E.	+ 0.24	—	1.9
May	28	F.	+ 0.03	—	0.2
July	8	S.	+ 0.03	—	0.5
Aug.	30	S.	— 0.05	+	1.8
Sept.	3	S.	+ 0.04	—	1.0
Oct.	6	S.	+ 0.02	+	1.6
	21	S.	+ 0.12	+	0.4
	29	S.	+ 0.06	+	1.4
	31	F.	— 0.08	+	1.3
Nov.	1	S.	— 0.01	+	0.5
	4	F.	— 0.17	+	1.7
	12	F.	— 0.01	—	0.2
Dec.	6	S.	+ 0.16		. .
Mean			— 0.031	+	0.41
Div., Flex. etc. .			. .	—	0.05

α Pegasi.

	h.	m.	s.
Right Ascension. . .	22	58	23.149
North Polar Distance .	75°	28′	57″.65

1872.			s.		″
Jan.	13	F.	+ 0.03		. .
	29	F.	. .	+	1.1
Feb.	1	E.	0.00	+	1.2
	5	E.	+ 0.01	+	2.1
April	1	E.	— 0.03	+	1.1
	4	E.	— 0.05	+	0.1
	9	F.	+ 0.15	+	0.8
May	28	F.	— 0.04	+	1.5
Aug.	30	S.	+ 0.01	+	0.6
Sept.	3	S.	+ 0.08	—	0.1
	6	S.	— 0.09	+	2.6
Oct.	29	S.	— 0.02	+	1.0
	31	F.	+ 0.02	+	2.4
Nov.	1	S.	+ 0.06	+	0.7
	7	E.	+ 0.02	+	1.7
	12	F.	+ 0.11	+	3.2
	15	E.	+ 0.07	—	0.5
	20	F.	+ 0.07	+	2.1
Dec.	6	S.	— 0.06	+	2.1
Mean			+ 0.019	+	1.32
Div., Flex., etc. .			. .	—	0.08

ο Cephei, S. P.

	h.	m.	s.
Right Ascension . .	23	13	22.737
North Polar Distance .	337°	24′	39″.78

ο Cephei, S. P.—Continued.

1872.			s.		″
April	25	E.	— 0.14	—	1.3
	29	E.	+ 0.20	+	0.7
Mean			— 0.030	—	0.30
Div., Flex., etc. .			. .	+	0.45

θ Piscium.

	h.	m.	s.
Right Ascension. . .	23	21	28.499
North Polar Distance .	84°	19′	24″.57

1872.			s.		″
Nov.	8	F.	+ 0.08	+	2.0
	27	E.	+ 0.08	+	1.7
Mean			+ 0.080	+	1.85
Div., Flex., etc. .			. .	—	0.35

ι Piscium.

	h.	m.	s.
Right Ascension. . .	23	33	22.074
North Polar Distance .	85°	4′	1″.58

1872.			s.		″
Nov.	4	F.	— 0.14	+	0.3
	12	F.	— 0.08	+	2.7
Dec.	7	S.	+ 0.04	+	0.4
Mean			— 0.060	+	1.13
Div., Flex., etc. .			. .	—	0.38

γ Cephei, (Ref.)

	h.	m.	s.
Right Ascension. . .	23	34	6.600
North Polar Distance .	13°	4′	55″.08

1872.			s.		″
Oct.	31	F.	+ 0.28	+	0.6
Nov.	20	F.	. .	—	0.2
Mean			+ 0.280	+	0.20

Groombridge 4163.

	h.	m.	s.
Right Ascension. . .	23	48	37.774
North Polar Distance .	16°	18′	7″.72

1872.			s.		″
Nov.	8	F.	— 0.15	—	0.8
	23	E.	+ 0.29	+	0.4
Mean			+ 0.070	—	0.20
Div., Flex., etc. .			. .	—	0.29

ω Piscium.

	h.	m.	s.
Right Ascension . .	23	52	44.362
North Polar Distance .	83°	50′	42″.49

1872.			s.		″
Jan.	26	S.	0.00	+	2.3
Oct.	31	F.	+ 0.06	+	1.7
Nov.	4	F.	— 0.12	+	1.0
	8	F.	— 0.03	+	0.8
	20	F.	+ 0.01	+	1.5
	23	E.	— 0.04	+	0.8
	27	E.	— 0.03	+	1.8
Mean			— 0.021	+	1.41
Div., Flex., etc. .			. .	—	0.34

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MEAN DECLINATIONS OF STARS

FOR 1870.0,

GIVEN BY INDIVIDUAL OBSERVATIONS

WITH THE

MURAL CIRCLE.

1872.

30——72

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MEAN DECLINATIONS OF STARS FOR 1870.0.

MURAL CIRCLE.

LALANDE 47298, $0^h\ 1^m\ 10^s$.

1872.		°	′	″
November 9	. .	+36	28	27.5
18	. .			23.6

LALANDE 47310, $0^h\ 1^m\ 31^s$.

November 20	. .	+36	33	37.3
23	. .			36.1

LACAILLE 9747, $0^h\ 3^m\ 38^s$.

November 27	. .	−26	35	14.9
December 4	. .			15.3

LALANDE 65, $0^h\ 5^m\ 30^s$.

November 23	. .	+38	19	40.5

LALANDE 100, $0^h\ 6^m\ 29^s$.

December 4	. .	+36	42	26.1

LALANDE 181, $0^h\ 8^m\ 24^s$.

November 9	. .	+37	21	43.9
18	. .			39.0

B. A. C. 39, $0^h\ 9^m\ 6^s$.

November 4	. .	+76	14	24.3
7	. .			22.1

B. A. C. 39, S. P., $0^h\ 9^m\ 6^s$.

April 24	. .	+76	14	20.7

LALANDE 201, $0^h\ 9^m\ 9^s$.

November 20	. .	+38	18	39.6
23	. .			34.6

B. A. C. 105, S. P., $0^h\ 22^m\ 44^s$.

April 19	. .	+76	18	44.9
24	. .			44.3
29	. .			45.3
May 4	. .			45.8
10	. .			45.0

(*), $0^h\ 23^m\ 39^s$.

November 4	. .	+42	41	9.4
7	. .			7.0

GROOMBRIDGE 73, $0^h\ 24^m\ 12^s$.

1872.		°	′	″
November 4	. .	+42	40	13.4
7	. .			12.2

(*), $0^h\ 24^m\ 34^s$.

November 18	. .	+38	18	15.5
20	. .			16.5

LALANDE 713, $0^h\ 24^m\ 36^s$.

November 18	. .	+38	16	23.7
20	. .			24.7

κ CASSIOPEÆ, $0^h\ 25^m\ 46^s$.

October 10	. .	+62	13	30.3

16 CASSIOPEÆ, $0^h\ 27^m\ 11^s$.

December 13	. .	+66	2	39.2

LALANDE 849, $0^h\ 28^m\ 21^s$.

November 23	. .	+36	7	37.6

B. A. C. 154, S. P., $0^h\ 30^m\ 17^s$.

May 21	. .	+81	47	11.4
28	. .			11.6

B. A. C. 175, $0^h\ 34^m\ 31^s$.

October 10	. .	+65	26	42.9
November 27	. .			43.4
December 13	. .			42.4

(*), $0^h\ 35^m\ 45^s$.

November 7	. .	+ 4	2	45.5
18	. .			47.6

(*), $0^h\ 35^m\ 57^s$.

November 20	. .	+ 4	6	44.4
23	. .			42.1

21 CASSIOPEÆ, $0^h\ 37^m\ 14^s$.

December 4	. .	+74	17	15.5

21 CASSIOPEÆ, S. P., $0^h\ 37^m\ 14^s$.

May 4	. .	+74	17	16.6
7	. .			16.1
28	. .			16.7

B. A. C. 225, $0^h\ 43^m\ 10^s$.

1872.		°	′	″
November 4	. .	+83	0	(44.4)
7	. .			41.1

2 URSÆ MINORIS, S. P., $0^h\ 51^m\ 40^s$.

May 13	. .	+85	34	8.7

O. ARG. S. 626, $0^h\ 59^m\ 59^s$.

November 7	. .	−24	40	36.5

O. ARG. S. 635, $1^h\ 1^m\ 3^s$.

October 10	. .	−24	40	47.6
November 7	. .			48.1
22	. .			47.4
December 4	. .			48.0

(*), $1^h\ 9^m\ 17^s$.

October 10	. .	+13	3	33.9

WEISSE I, 137, $1^h\ 10^m\ 37^s$.

November 18	. .	+13	14	24.5
20	. .			25.0

WEISSE I, 144, $1^h\ 10^m\ 59^s$.

November 23	. .	+12	52	56.7
27	. .			57.0
December 13	. .			57.2

POLARIS, $1^h\ 11^m\ 58^s$.

January 2	. .	+88	37	37.1
5	. .			37.1

POLARIS, S. P., $1^h\ 11^m\ 58^s$.

April 22	. .	+88	37	36.5
24	. .			35.8
29	. .			35.8
May 10	. .			35.8
June 4	. .			36.6
12	. .			35.6

(*), $1^h\ 12^m\ 27^s$.

November 18	. .	+13	13	7.0

38 CASSIOPEÆ, $1^h\ 21^m\ 44^s$.

January 5	. .	+69	36	17.0
9	. .			18.1

η PISCIUM, $1^h\ 24^m\ 38^s$.

1872.		°	′	″
January 2	. .	+14	41	6.0

(*), $1^h\ 26^m\ 11^s$.

November 18	. .	+15	2	17.3
20	. .			20.8

(*), $1^h\ 27^m\ 15^s$.

November 20	. .	+15	6	53.8

B. A. C. 482, $1^h\ 29^m\ 52^s$.

December 4	. .	+57	19	28.5
13	. .			28.2

50 ANDROMEDÆ, $1^h\ 30^m\ 21^s$.

November 23	. .	+40	45	52.4
27	. .			53.7

O. ARG. S. 992, $1^h\ 33^m\ 52^s$.

November 18	. .	−23	33	44.3
20	. .			44.1

B. A. C. 494, $1^h\ 34^m\ 35^s$.

January 9	. .	+86	17	55.7

τ CETI, $1^h\ 38^m\ 10^s$.

November 23	. .	−16	36	42.9
27	. .			42.4
December 4	. .			42.6

o PISCIUM, $1^h\ 38^m\ 38^s$.

January 5	. .	+ 8	30	47.7

LALANDE 3390, $1^h\ 44^m\ 56^s$.

November 20	. .	+36	47	60.8
December 4	. .			59.8

ε CASSIOPEÆ, $1^h\ 45^m\ 10^s$.

January 9	. .	+63	2	19.4
November 27	. .			17.8

LALANDE 3412, $1^h\ 45^m\ 40^s$.

November 18	. .	+36	41	22.5
23	. .			26.0

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50 CASSIOPEÆ, $1^h\ 52^m\ 53^s$.

1872.			° ′ ″
January	5	. .	+71 48 1.5
	9	. .	1.7
	12	. .	1.8
December	4	. .	1.3

WEISSE II, 186, $2^h\ 13^m\ 13^s$.

January	5	. .	−11 12 27.5
	9	. .	27.7
November	27	. .	23.7
December	4	. .	27.0
	13	. .	28.5

ι CASSIOPEÆ, $2^h\ 18^m\ 33^s$.

January	9	. .	+66 49 30.9
	12	. .	30.9
	25	. .	31.7

ι CASSIOPEÆ, S. P., $2^h\ 18^m\ 33^s$.

June	6	. .	+66 49 29.0

B. A. C. 814, $2^h\ 33^m\ 50^s$.

January	12	. .	+67 16 43.3
	25	. .	43.7
	30	. .	42.7
December	13	. .	42.4

B. A. C. 814, S. P., $2^h\ 33^m\ 50^s$.

June	18	. .	+67 16 41.3

B. A. C. 896, $2^h\ 49^m\ 6^s$.

January	29	. .	+78 54 32.4
December	13	. .	33.0

B. A. C. 960, $3^h\ 2^m\ 20^s$.

January	12	. .	+84 27 4.5
	25	. .	4.1
	29	. .	2.2
February	1	. .	3.9

48 CEPHEI, $3^h\ 4^m\ 10^s$.

January	5	. .	+77 15 37.5
	9	. .	37.9
	30	. .	37.5

B. A. C. 1061, $3^h\ 24^m\ 38^s$.

January	9	. .	+86 14 15.5
	25	. .	15.7

(*), $3^h\ 25^m\ 16^s$.

February	1	. .	+46 50 34.0

WEISSE (2) III, 776, $3^h\ 26^m\ 36^s$.

February	1	. .	+44 56 56.2

(*), $3^h\ 27^m\ 44^s$.

January	29	. .	+46 50 1.7
	30	. .	2.8
February	1	. .	0.5

(*), $3^h\ 28^m\ 4^s$.

1872.			° ′ ″
January	29	. .	+46 50 2.5
	30	. .	3.0
February	1	. .	4.1

WEISSE (2) III, 776, $3^h\ 36^m\ 37^s$.

January	29	. .	+44 56 56.5
	30	. .	56.8
February	1	. .	56.2

γ CAMELOPARDI, $3^h\ 36^m\ 52^s$.

January	12	. .	+70 56 3.6
	25	. .	4.9

γ CAMELOPARDI, S. P., $3^h\ 36^m\ 52^s$.

May	28	. .	+70 56 2.9
July	6	. .	3.0

(*), $3^h\ 37^m\ 59^s$.

January	22	. .	+23 55 59.6

(*), $3^h\ 38^m\ 50^s$.

January	22	. .	+23 51 17.3

WEISSE (2) III, 847, $3^h\ 39^m\ 8^s$.

January	29	. .	+44 57 23.2
	30	. .	24.5
February	1	. .	23.0

PLEIADUM, $3^h\ 39^m\ 40^s$.

January	5	. .	+23 43 50.7

(*), $3^h\ 39^m\ 50^s$.

January	22	. .	+23 53 25.8

(*), $3^h\ 40^m\ 40^s$.

January	22	. .	+23 55 22.8

WEISSE (2) III, 882, $3^h\ 41^m\ 16^s$.

December	2	. .	+44 34 29.3

PLEIADUM, $3^h\ 41^m\ 34^s$.

January	5	. .	+23 44 38.1

(*), $3^h\ 42^m\ 18^s$.

January	22	. .	+23 57 28.8

RADCLIFFE 1084, $3^h\ 43^m\ 23^s$.

January	12	. .	+40 24 35.4
	25	. .	34.4

B. A. C. 1211, S. P., $3^h\ 49^m\ 1^s$.

June	28	. .	+80 20 25.5
July	2	. .	25.5

B. A. C. 1247, $3^h\ 58^m\ 44^s$.

1872.			° ′ ″
January	12	. .	+83 29 16.6

B. A. C. 1247, S. P., $3^h\ 58^m\ 44^s$.

June	22	. .	+83 29 14.5
July	6	. .	18.4

WEISSE (2) III, 1251, $3^h\ 59^m\ 33^s$.

January	29	. .	+41 8 44.3
	30	. .	46.4
February	1	. .	43.7

WEISSE (2) III, 1269, $4^h\ 0^m\ 12^s$.

January	29	. .	+41 9 36.0
	30	. .	39.6
February	1	. .	37.2

(*), $4^h\ 2^m\ 21^s$.

December	2	. .	− 7 49 22.4

B. A. C. 1300, $4^h\ 8^m\ 38^s$.

January	22	. .	+64 49 29.1
	29	. .	29.9
	30	. .	28.6
February	1	. .	29.6

B. A. C. 1300, S. P., $4^h\ 8^m\ 38^s$.

July	12	. .	+64 49 30.0

LACAILLE 1389, $4^h\ 9^m\ 11^s$.

December	13	. .	−32 21 59.9

γ TAURI, $4^h\ 12^m\ 31^s$.

January	25	. .	+15 19 0.5

58 TAURI, $4^h\ 13^m\ 26^s$.

December	2	. .	+14 47 11.6

δ^2 TAURI, $4^h\ 16^m\ 53^s$.

December	13	. .	+17 8 43.9

WEISSE (2) IV, 333, $4^h\ 17^m\ 1^s$.

January	29	. .	+36 58 37.6
February	1	. .	36.3

(*), $4^h\ 24^m\ 10^s$.

January	30	. .	+35 39 24.6
December	2	. .	19.7

B. A. C. 1399, S. P., $4^h\ 26^m\ 40^s$.

June	12	. .	+80 24 9.0

WEISSE (2) IV, 618, $4^h\ 29^m\ 15^s$.

December	13	. .	+15 36 22.5

(*), $4^h\ 32^m\ 43^s$.

1872.			° ′ ″
January	5	. .	+33 30 32.9
	12	. .	33.0

WEISSE IV, 728, $4^h\ 34^m\ 28^s$.

December	2	. .	+ 3 15 53.6
	13	. .	53.6

B. A. C. 1448, $4^h\ 36^m\ 27^s$.

January	22	. .	+80 58 26.6
	25	. .	26.7
	29	. .	26.7
	30	. .	27.3
February	1	. .	27.0
	24	. .	27.6

B. A. C. 1448, S. P., $4^h\ 36^m\ 27^s$.

June	22	. .	+80 58 24.4

α CAMELOPARDI, $4^h\ 41^m\ 20^s$.

January	12	. .	+66 7 17.8
	22	. .	17.7
	25	. .	18.0
	30	. .	18.1
February	1	. .	18.6
	19	. .	17.0
	24	. .	17.9

B. A. C. 1510, $4^h\ 48^m\ 43^s$.

December	2	. .	+73 52 22.2

(*), $4^h\ 55^m\ 32^s$.

December	2	. .	+21 24 16.8

WEISSE (2) V, 287, $5^h\ 1^m\ 54^s$.

December	2	. .	+30 22 27.5

O. ARG. S. 3717, $5^h\ 4^m\ 17^s$.

December	2	. .	−25 32 54.6

B. A. C. 1619, $5^h\ 9^m\ 44^s$.

January	29	. .	+77 51 12.2
	30	. .	10.2
February	1	. .	11.6
	19	. .	11.1
	24	. .	12.6

B. A. C. 1619, S. P., $5^h\ 9^m\ 44^s$.

July	5	. .	+77 51 10.5
August	20	. .	9.9

O. ARG. S. 3917, $5^h\ 18^m\ 37^s$.

December	2	. .	−16 9 43.7

B. A. C. 1706, $5^h\ 22^m\ 2^s$.

February	1	. .	+74 57 13.9
	19	. .	12.6

B. A. C. 1751, $5^h\ 29^m\ 37^s$.

January	25	. .	+65 37 27.2
February	26	. .	27.3

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B. A. C. 1879, $5^h\ 54^m\ 27^s$.

1872.			°	′	″
February	1	. .	+86	45	45.0
	19	. .			43.7

22 CAMELOPARDI, $6^h\ 4^m\ 44^s$.

January	22	. .	+69	21	38.3
	25	. .			37.6
February	19	. .			37.0

B. A. C. 2069, $6^h\ 20^m\ 31^s$.

January	25	. .	+78	5	27.3
February	26	. .			26.0

B. A. C. 2095, $6^h\ 24^m\ 24^s$.

February	26	. .	+79	41	44.6

42 CAMELOPARDI, $6^h\ 37^m\ 39^s$.

February	26	. .	+67	42	41.1

51 CEPHEI, $6^h\ 39^m\ 44^s$.

January	25	. .	+87	14	16.4

51 CEPHEI, S. P., $6^h\ 39^m\ 44^s$.

August	24	. .	+87	14	15.6
September	21	. .			14.3

B. A. C. 2210, $6^h\ 41^m\ 29^s$.

February	26	. .	+77	8	3.4
March	16	. .			4.6

B. A. C. 2210, S. P., $6^h\ 41^m\ 29^s$.

September	7	. .	+77	8	2.5

GROOMBRIDGE 1228, $6^h\ 45^m\ 54^s$.

February	19	. .	+70	58	32.0

B. A. C. 2317, $7^h\ 1^m\ 5^s$.

February	26	. .	+81	28	56.4
March	16	. .			57.4

B. A. C. 2326, S. P., $7^h\ 4^m\ 3^s$.

September	14	. .	+82	38	50.6

B. A. C. 2377, $7^h\ 11^m\ 12^s$.

February	19	. .	+81	8	56.1
March	19	. .			57.8

B. A. C. 2377, S. P., $7^h\ 11^m\ 12^s$.

September	24	. .	+81	8	55.1

PIAZZI VII, 67, $7^h\ 17^m\ 32^s$.

February	26	. .	+68	43	23.5
March	21	. .			24.0

B. A. C. 2320, $7^h\ 25^m\ 47^s$.

1872.			°	′	″
March	16	. .	+89	0	2.1

B. A. C. 2320, S. P., $7^h\ 25^m\ 47^s$.

September	7	. .	+88	59	60.4
	21	. .			59.6

B. A. C. 2521, $7^h\ 35^m\ 14^s$.

February	26	. .	+80	34	47.2
March	21	. .			48.0
	23	. .			48.5

B. A. C. 2521, S. P., $7^h\ 35^m\ 14^s$.

September	21	. .	+80	34	47.4
	24	. .			46.3
October	1	. .			48.7

B. A. C. 2590, $7^h\ 44^m\ 43^s$.

March	16	. .	+79	49	26.9
	19	. .			25.9

B. A. C. 2596, S. P., $7^h\ 44^m\ 50^s$.

October	8	. .	+74	15	19.5

B. A. C. 2677, $7^h\ 59^m\ 35^s$.

February	26	. .	+82	49	13.7
March	21	. .			14.1
	27	. .			14.4
	29	. .			14.4

B. A. C. 2677, S. P., $7^h\ 59^m\ 35^s$.

October	15	. .	+82	49	13.8

B. A. C. 2749, $8^h\ 6^m\ 38^s$.

February	26	. .	+72	48	2.6
March	19	. .			2.5
	21	. .			2.5
	29	. .			3.8
April	2	. .			3.4
	4	. .			3.5
	5	. .			2.8

B. A. C. 2749, S. P., $8^h\ 6^m\ 38^s$.

September	27	. .	+72	48	4.1
October	1	. .			2.6
	8	. .			2.7

(*), $8^h\ 9^m\ 46^s$.

March	16	. .	+31	3	45.0

(*), $8^h\ 10^m\ 22^s$.

February	26	. .	+31	1	25.8
March	16	. .			28.5

LACAILLE 3293, $8^h\ 18^m\ 13^s$.

March	21	. .	−27	24	36.1

o URSÆ MAJORIS, $8^h\ 19^m\ 35^s$.

1872.			°	′	″
March	29	. .	+61	8	37.3
April	2	. .			37.3

B. A. C. 2824, $8^h\ 20^m\ 20^s$.

March	16	. .	+69	44	47.3
	27	. .			47.1

O. ARG. S. 8531, $8^h\ 22^m\ 50^s$.

April	5	. .	−27	8	28.8

B. A. C. 2830, S. P., $8^h\ 23^m\ 2^s$.

October	1	. .	+82	41	9.7
	8	. .			9.8

(*), $8^h\ 23^m\ 46^s$.

March	23	. .	−28	15	50.7
April	4	. .			50.2

LACAILLE 3341, $8^h\ 23^m\ 52^s$.

March	23	. .	−28	14	26.6

(*), $8^h\ 24^m\ 21^s$.

March	27	. .	+19	53	15.8
	29	. .			17.9

(*), $8^h\ 24^m\ 31^s$.

March	21	. .	−31	20	50.6

(*), $8^h\ 26^m\ 0^s$.

March	21	. .	−31	18	46.8

(*), $8^h\ 27^m\ 1^s$.

March	21	. .	−31	16	42.3

(*), $8^h\ 28^m\ 0^s$.

April	4	. .	−34	11	55.5

(*), $8^h\ 28^m\ 30^s$.

April	4	. .	−34	12	45.1

π URSÆ MAJORIS, $8^h\ 29^m\ 0^s$.

April	2	. .	+64	46	21.0

B. A. C. 2910, $8^h\ 31^m\ 37^s$.

April	5	. .	−25	58	15.4

O. ARG. S. 8776, $8^h\ 31^m\ 47^s$.

March	29	. .	−23	51	24.6

WEISSE VIII, 829, $8^h\ 32^m\ 39^s$.

March	23	. .	− 2	35	9.9
	27	. .			8.8

LALANDE 17053, $8^h\ 32^m\ 48^s$.

1872.			°	′	″
April	10	. .	+ 6	13	27.7

B. A. C. 2930, $8^h\ 36^m\ 47^s$.

April	2	. .	+80	30	11.2
	5	. .			11.4

B. A. C. 2930, S. P., $8^h\ 36^m\ 47^s$.

October	21	. .	+80	30	11.4

LACAILLE 3509, $8^h\ 40^m\ 35^s$.

April	13	. .	−26	8	48.6

LACAILLE 3511, $8^h\ 41^m\ 1^s$.

March	27	. .	−26	9	41.6

(*), $8^h\ 43^m\ 3^s$.

April	4	. .	−41	15	28.4

LACAILLE 3561, $8^h\ 44^m\ 57^s$.

April	5	. .	−42	20	53.1

(*), $8^h\ 45^m\ 9^s$.

April	4	. .	−41	16	3.7

(*), $8^h\ 45^m\ 16^s$.

April	2	. .	+13	44	53.8

(*), $8^h\ 45^m\ 23^s$.

April	5	. .	−35	27	14.6

6 URSÆ MAJORIS, $8^h\ 45^m\ 43^s$.

March	19	. .	+65	5	28.4

(*), $8^h\ 45^m\ 55^s$.

April	4	. .	−41	14	42.3

ρ^3 CANCRI, $8^h\ 47^m\ 59^s$.

March	29	. .	+28	24	52.6

O. ARG. S. 9127, $8^h\ 48^m\ 47^s$.

April	13	. .	−30	45	33.6

(*), $8^h\ 49^m\ 17^s$.

April	4	. .	−41	20	32.0

(*), $8^h\ 49^m\ 32^s$.

March	27	. .	−32	56	13.9

(*), $8^h\ 50^m\ 20^s$.

March	27	. .	−32	54	49.3

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B. A. C. 3042, $8^h\ 52^m\ 6^s$.

1872.			° ′ ″
February	26	. .	+81 20 13.6
March	21	. .	14.3
	23	. .	14.2

B. A. C. 3042, S. P., $8^h\ 52^m\ 6^s$.

September	24	. .	+81 20 11.8
	27	. .	15.0
October	1	. .	14.6
	15	. .	12.9

LACAILLE 3621, $8^h\ 54^m\ 8^s$.

April	2	. .	−27 19 1.8

σ^2 URSÆ MAJORIS, $8^h\ 59^m\ 11^s$.

March	23	. .	+67 39 5.4

σ^2 URSÆ MAJORIS, S. P., $8^h\ 59^m\ 11^s$.

October	15	. .	+67 39 4.8
	21	. .	4.7

B. A. C. 3107, $8^h\ 59^m\ 40^s$.

March	29	. .	+15 43 46.5
April	13	. .	45.9

τ URSÆ MAJORIS, $9^h\ 0^m\ 25^s$.

April	4	. .	+64 1 55.4
	5	. .	56.1

τ URSÆ MAJORIS, S. P., $9^h\ 0^m\ 25^s$.

October	8	. .	+64 1 53.8

c URSÆ MAJORIS, $9^h\ 4^m\ 18^s$.

March	27	. .	+61 56 57.1
April	10	. .	54.7
	13	. .	54.5

LALANDE 18362, $9^h\ 13^m\ 0^s$.

April	5	. .	+38 43 44.4

DORPAT 1343, (1st *,) $9^h\ 13^m\ 9^s$.

April	10	. .	+ 5 39 55.4

DORPAT 1343, (2d *,) $9^h\ 13^m\ 9^s$.

April	10	. .	+ 5 40 22.9
	13	. .	24.8

26 HYDRÆ, $9^h\ 13^m\ 36^s$.

April	17	. .	−11 26 8.0

(*), $9^h\ 15^m\ 50^s$.

April	2	. .	−34 48 51.7

LACAILLE 3802, $9^h\ 17^m\ 20^s$.

April	4	. .	−29 58 39.8

(*), $9^h\ 17^m\ 43^s$.

1872.			° ′ ″
April	5	. .	−34 58 23.8
	19	. .	25.1

O. ARG. S. 9661, $9^h\ 17^m\ 44^s$.

April	4	. .	−29 56 28.6

1 DRACONIS, (H.,) $9^h\ 18^m\ 39^s$.

March	21	. .	+81 53 20.0
	23	. .	19.6
	29	. .	20.3

1 DRACONIS, (H.,) S. P., $9^h\ 18^m\ 39^s$.

September	21	. .	+81 53 17.7
October	31	. .	18.5

h URSÆ MAJORIS, $9^h\ 21^m\ 30^s$.

October	15	. .	+63 37 9.1
November	4	. .	7.2

d URSÆ MAJORIS, $9^h\ 23^m\ 13^s$.

October	29	. .	+70 23 27.5

(*), $9^h\ 30^m\ 58^s$.

April	10	. .	−23 55 42.7

B. A. C. 3275, S. P., $9^h\ 31^m\ 0^s$.

October	31	. .	+78 42 55.0

O. ARG. S. 9914, $9^h\ 31^m\ 14^s$.

April	4	. .	−23 55 31.2
	5	. .	27.7

B. A. C. 3284, S. P., $9^h\ 32^m\ 9^s$.

October	29	. .	+79 43 15.0

(*), $9^h\ 32^m\ 40^s$.

April	19	. .	−36 21 11.0
	27	. .	9.6

(*), $9^h\ 32^m\ 49^s$.

April	10	. .	−23 50 30.5
	13	. .	27.3

28 URSÆ MAJORIS, $9^h\ 36^m\ 7^s$.

April	17	. .	+64 14 27.0

28 URSÆ MAJORIS, S. P., $9^h\ 36^m\ 7^s$.

October	8	. .	+64 14 27.1
November	9	. .	25.4

BRISBANE 2651, $9^h\ 40^m\ 55^s$.

April	2	. .	−40 2 59.7

BRISBANE 2657, $9^h\ 41^m\ 24^s$.

1872.			° ′ ″
April	2	. .	−40 5 23.0
	19	. .	20.5

(*), $9^h\ 43^m\ 8^s$.

April	19	. .	−40 3 14.4

LACAILLE 4030, $9^h\ 43^m\ 9^s$.

April	4	. .	−37 2 29.8

LACAILLE 4052, $9^h\ 46^m\ 16^s$.

April	13	. .	−32 22 47.9
	24	. .	48.3

(*), $9^h\ 46^m\ 26^s$.

April	10	. .	+15 19 5.2

B. A. C. 3376, $9^h\ 46^m\ 54^s$.

March	21	. .	+73 29 11.2
	27	. .	10.7
	29	. .	11.7

B. A. C. 3376, S. P., $9^h\ 46^m\ 54$.

September	21	. .	+73 29 9.3
	24	. .	8.4
October	1	. .	11.1

WEISSE (2) IX, 980, $9^h\ 46^m\ 55^s$.

April	10	. .	+15 20 21.7

(*), $9^h\ 50^m\ 20^s$.

April	4	. .	−27 53 42.4

(*), $9^h\ 50^m\ 44^s$.

April	2	. .	−40 13 2.5
	19	. .	1.3

(*), $9^h\ 55^m\ 55^s$.

April	10	. .	+13 27 56.4

(*), $9^h\ 56^m\ 50^s$.

April	4	. .	+13 29 57.6
	10	. .	52.1

(*), $10^h\ 4^m\ 14^s$.

April	2	. .	−36 8 21.3

LACAILLE 4196, $10^h\ 7^m\ 50^s$.

April	4	. .	−32 24 0.6
	19	. .	3.2

32 URSÆ MAJORIS, $10^h\ 8^m\ 47^s$.

March	27	. .	+65 44 45.4
April	13	. .	45.5
	17	. .	45.8
May	4	. .	44.6

32 URSÆ MAJORIS, S. P., $10^h\ 8^m\ 47^s$.

1872.			° ′ ″
November	4	. .	+65 44 (42.5)
	20	. .	45.7

B. A. C. 3495, $10^h\ 10^m\ 45^s$.

April	5	. .	+84 53 59.9
	24	. .	60.9
	29	. .	60.6

B. A. C. 3495, S. P., $10^h\ 10^m\ 45^s$.

November	9	. .	+84 53 59.8
	23	. .	59.0

γ LEONIS, (2d *,) $10^h\ 12^m\ 50^s$.

April	10	. .	+20 19 15.6

B. A. C. 3528, $10^h\ 15^m\ 16^s$.

March	21	. .	+83 12 29.1
	23	. .	29.6
April	2	. .	29.4
	4	. .	28.5

B. A. C. 3528, $10^h\ 15^m\ 18^s$

September	27	. .	+83 12 29.6

LALANDE 20114, $20^h\ 15^m\ 26^s$.

April	19	. .	−23 4 2.6

O. ARG. S., 10594, $10^h\ 17^m\ 52^s$

April	13	. .	−29 38 8.9

B. A. C. 3592, $10^h\ 23^m\ 10^s$.

April	4	. .	+ 2 8 61.1
	10	. .	59.8

B. A. C. 3593, $10^h\ 24^m\ 31^s$.

April	22	. .	+76 22 16.7

(*), $10^h\ 28^m\ 43^s$.

April	10	. .	−37 28 6.7

(*), $10^h\ 29^m\ 15^s$.

April	4	. .	−38 53 20.5

B. A. C. 3630, $10^h\ 29^m$ 26

April	4	. .	−38 54 5.4
	13	. .	5.8
	19	. .	4.8

WEISSE X, 520, $10^h\ 30^m\ 14^s$.

March	21	. .	−11 32 35.4

B. A. C. 3629, $10^h\ 30^m\ 52^s$.

May	4	. .	+81 5 37.4

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38 URSÆ MAJORIS, $10^h\ 33^m\ 7^s$.

1872.			° ′ ″
April	2	. .	+66 23 11.0
	29	. .	10.4
May	7	. .	9.9

38 URSÆ MAJORIS, S. P., $10^h\ 33^m\ 7^s$.

October	29	. .	+66 23 8.8
November	18	. .	9.0

B. A. C. 3652, $10^h\ 33^m\ 57^s$.

March	27	. .	+69 44 41.4
April	24	. .	42.3

B. A. C. 3652, S. P., $10^h\ 33^m\ 57^s$

October	31	. .	+69 44 40.1
November	23	. .	39.9

33 SEXTANTIS, $10^h\ 34^m\ 54^s$.

April	22	. .	− 1 4 9.1

LACAILLE 4412, $10^h\ 36^m\ 13^s$.

April	19	. .	−40 1 24.0

LACAILLE 4438, $10^h\ 38^m\ 44^s$.

April	10	. .	−37 28 14.2

37 SEXTANTIS, $10^h\ 39^m\ 25^s$.

April	24	. .	+ 7 2 51.0

WEISSE X, 703, $10^h\ 40^m\ 41^s$.

March	27	. .	+ 7 1 18.4

WEISSE X, 716, $10^h\ 41^m\ 30^s$.

April	4	. .	+12 34 21.6

O. ARG. S., 10941, $10^h\ 46^m\ 22^s$.

April	10	. .	−29 30 10.9
	19	. .	9.8

B. A. C. 3747, $10^h\ 49^m\ 44^s$.

April	24	. .	+78 27 19.5

WEISSE X, 637, $10^h\ 50^m\ 34^s$.

April	29	. .	− 3 44 13.4

α URSÆ MAJORIS, $10^h\ 55^m\ 49^s$.

April	2	. .	+62 26 30.6
	10	. .	30.5
	19	. .	30.3
	29	. .	30.4
May	4	. .	30.3
	7	. .	30.8

α URSÆ MAJORIS, S. P., $10^h\ 55^m\ 49^s$.

November	7	. .	+62 26 26.6

(*), $10^h\ 56^m\ 22^s$.

1872.			° ′ ″
March	27	. .	+36 49 37.2

WEISSE (2) X, 1174, $10^h\ 59^m\ 10^s$.

April	4	. .	+44 11 1.9

(*), $11^h\ 1^m\ 0^s$.

April	10	. .	−32 51 44.6
	13	. .	43.3

(*), $11^h\ 2^m\ 1^s$.

April	22	. .	−40 14 32.2

WEISSE (2) XI, 15, $11^h\ 3^m\ 11^s$.

April	24	. .	+36 1 44.1
May	10	. .	43.6

B. A. C. 3821, $11^h\ 4^m\ 0^s$.

May	13	. .	+68 57 58.0

B. A. C. 3821, S. P., $11^h\ 4^m\ 0^s$.

November	7	. .	+68 57 56.2

WEISSE (2) XI, 182, $11^h\ 11^m\ 0^s$.

April	13	. .	+36 8 34.1
	19	. .	33.8

ξ URSÆ MAJORIS, $11^h\ 11^m\ 15^s$.

April	10	. .	+32 14 55.9

WEISSE XI, 200, $11^h\ 13^m\ 6^s$.

April	13	. .	+36 11 19.7
	19	. .	19.3

LACAILLE 4714, $11^h\ 15^m\ 9^s$.

April	22	. .	−28 53 33.9
	29	. .	36.6
May	4	. .	34.4
	13	. .	35.3

B. A. C. 3864, S. P., $11^h\ 15^m\ 17^s$.

November	9	. .	+65 1 48.8

B. A. C. 3906, S. P., $11^h\ 22^m\ 52^s$.

October	31	. .	+81 49 53.3

λ DRACONIS, $11^h\ 23^m\ 50^s$.

May	10	. .	+70 2 15.5

λ DRACONIS, S. P., $11^h\ 23^m\ 50^s$.

November	7	. .	+70 2 12.8
	20	. .	15.4
	23	. .	13.0

LALANDE 2191, $11^h\ 25^m\ 46^s$.

April	22	. .	+ 0 17 51.7

LACAILLE 4777, $11^h\ 26^m\ 30^s$.

1872.			° ′ ″
April	10	. .	−35 30 4.8
	13	. .	6.7
	29	. .	5.7

(*), $11^h\ 27^m\ 57^s$.

April	10	. .	−35 29 47.2
	13	. .	48.5

(*), $11^h\ 28^m\ 3^s$.

April	29	. .	−35 29 48.7

2 DRACONIS, $11^h\ 28^m\ 34^s$.

May	10	. .	+70 2 7.2

2 DRACONIS, S. P., $11^h\ 28^m\ 34^s$.

November	4	. .	+70 2 3.7
	7	. .	4.7
	20	. .	4.6
	23	. .	4.8

LACAILLE 4824, $11^h\ 32^m\ 15^s$.

April	10	. .	−38 32 14.5
	19	. .	(21.5)

(*), $11^h\ 33^m\ 20^s$.

April	24	. .	+ 1 39 42.2
May	10	. .	43.0

61 URSÆ MAJORIS, $11^h\ 34^m\ 20^s$.

April	22	. .	+34 55 29.9
	29	. .	30.1

3 DRACONIS, S. P., $11^h\ 35^m\ 27^s$.

November	9	. .	+67 27 11.1
	18	. .	12.8

(*), $11^h\ 37^m\ 17^s$.

April	13	. .	−28 58 4.5

O. ARG. S. 11610, $11^h\ 37^m\ 24^s$.

May	4	. .	−28 58 5.4

(*), $11^h\ 37^m\ 34^s$.

May	13	. .	−29 2 16.8

A^1 VIRGINIS, $11^h\ 41^m\ 21^s$.

May	10	. .	+ 9 37 24.8
	20	. .	25.5

(*), $11^h\ 44^m\ 8^s$.

April	19	. .	−36 58 6.6
	22	. .	7.1

B. A. C. 4020, $11^h\ 47^m\ 18^s$.

April	19	. .	− 3 3 46.0
	24	. .	45.2

(*), $11^h\ 47^m\ 25^s$.

1872.			° ′ ″
April	13	. .	+ 1 3 15.3

B. A. C. 4036, S. P., $11^h\ 48^m\ 3^s$.

October	29	. .	+62 15 45.7
November	4	. .	46.1
	18	. .	47.7

B. A. C. 4050, $11^h\ 53^m\ 29^s$.

April	24	. .	+81 34 3.8
	29	. .	2.5
May	4	. .	3.1

B. A. C. 4050, S. P., $11^h\ 53^m\ 29^s$.

October	10	. .	+81 34 1.3
	31	. .	2.4
November	9	. .	1.1
	20	. .	1.4

B. A. C. 4070, $11^h\ 58^m\ 34^s$.

May	10	. .	+86 17 49.2
	13	. .	48.1

B. A. C. 4070, S. P., $11^h\ 58^m\ 34^s$.

October	31	. .	+86 17 47.8
November	4	. .	45.9
	7	. .	46.8

4 DRACONIS, (H.,) $12^h\ 6^m\ 14^s$.

April	22	. .	+78 19 39.9
May	7	. .	39.3

4 DRACONIS, (H.,) S. P., $12^h\ 6^m\ 14^s$.

October	19	. .	+78 19 38.3

LALANDE 22934, (1st *,) $12^h\ 7^m\ 41^s$.

April	29	. .	+33 29 48.5

LALANDE 22934, (2d *,) $12^h\ 7^m\ 41^s$.

April	29	. .	+33 29 49.0

WEISSE XII, 107, $12^h\ 8^m\ 46^s$.

May	7	. .	− 9 33 52.9
	10	. .	52.5

WEISSE XII, 114, $12^h\ 9^m\ 6^s$.

May	7	. .	− 9 33 39.3
	10	. .	38.5

(*), $12^h\ 11^m\ 51^s$.

April	22	. .	−25 51 15.0
May	13	. .	14.5

B. A. C. 4150, S. P., $12^h\ 13^m\ 20^s$.

December	13	. .	+87 8 50.4

B. A. C. 4165, $12^h\ 14^m\ 17^s$.

April	24	. .	+88 24 34.7
May	28	. .	34.2

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B. A. C. 4193, $12^h\ 19^m\ 51^s$.

1872.		° ′ ″
May	21 . .	+84 8 18.0

B. A. C. 4193, S.P., $12^h\ 19^m\ 51^s$.

November	23 . .	+84 8 14.5

4 DRACONIS, $12^h\ 24^m\ 32^s$.

May	7 . .	+69 54 39.3
	13 . .	38.2

κ DRACONIS, $12^h\ 28^m\ 0^s$.

April	29 . .	+70 29 39.2
May	10 . .	39.3

6 DRACONIS, $12^h\ 29^m\ 22^s$.

April	19 . .	+70 43 39.9
May	4 . .	40.0

LACAILLE 5239, $12^h\ 34^m\ 4^s$.

April	24 . .	−27 0 34.7
May	23 . .	35.4

(*), $12^h\ 41^m\ 6^s$.

May	13 . .	−26 51 45.5

35 VIRGINIS, $12^h\ 41^m\ 21^s$.

May	10 . .	+ 4 16 20.7

O. ARG. N. 12996, $12^h\ 41^m\ 21^s$.

May	21 . .	+78 0 24.6

LACAILLE 5284, $12^h\ 41^m\ 25^s$.

April	22 . .	−31 37 30.1
	24 . .	30.5

7 DRACONIS, S. P., $12^h\ 42^m\ 30^s$.

December	13 . .	+67 29 20.5

WEISSE (2) XII, 868, $12^h\ 43^m\ 15^s$.

May	23 . .	+26 55 17.9
	28 . .	16.2

(*), $12^h\ 44^m\ 49^s$.

May	4 . .	−25 8 6.0

32 CAMELOPARDI, (1st*,) S.P., $12^h\ 48^m\ 0^s$.

Oct.	10 . .	+84 6 49.1
Nov.	4 . .	50.8
	27 . .	50.9
Dec.	4 . .	48.2

32 CAMELOPARDI, (2d*,) S.P., $12^h\ 48^m\ 12^s$.

Oct.	10 . .	+84 6 31.5
Nov.	3 . .	32.5
	27 . .	32.4
Dec.	4 . .	29.3

LACAILLE 5347, $12^h\ 52^m\ 0^s$.

1872.		° ′ ″
April	22 . .	−43 0 42.9
	28 . .	45.4

O. ARG. S. 12564, $12^h\ 52^m\ 39^s$.

May	4 . .	−21 26 6.5

9 DRACONIS, $12^h\ 55^m\ 8^s$.

April	24 . .	+67 17 18.1

(*), $12^h\ 58^m\ 41^s$.

May	21 . .	−34 25 28.6
	28 . .	31.3

O. ARG. S. 12671, $13^h\ 1^m\ 48^s$.

April	22 . .	−23 8 15.7

50 VIRGINIS, $13^h\ 3^m\ 3^s$.

April	29 . .	− 9 38 43.3
May	10 . .	44.6

θ VIRGINIS, $13^h\ 3^m\ 21^s$.

May	4 . .	− 4 51 15.4

β COMÆ, $13^h\ 5^m\ 56^s$.

May	21 . .	+28 31 40.2
	23 . .	39.5
	28 . .	40.1

B. A. C. 4498, $13^h\ 19^m\ 54^s$.

June	12 . .	+85 25 26.6

(*), $13^h\ 21^m\ 24^s$.

May	4 . .	−32 48 59.2

B. A. C. 4506, $13^h\ 23^m\ 54^s$.

May	28 . .	+73 3 23.6

B. A. C. 4527, $13^h\ 25^m\ 55^s$.

April	22 . .	+79 18 19.3

LACAILLE 5635, $13^h\ 32^m\ 6^s$.

April	22 . .	−26 55 36.1
May	23 . .	36.5

LACAILLE 5649, $13^h\ 34^m\ 58^s$.

June	12 . .	−33 19 58.9

85 VIRGINIS, $13^h\ 38^m\ 44^s$.

May	4 . .	−15 7 22.7
	10 . .	24.0

(*), $13^h\ 41^m\ 7^s$.

June	4 . .	−30 6 34.1

O. ARG. S. 13177, $13^h\ 43^m\ 32^s$.

1872.		° ′ ″
May	23 . .	−27 40 18.1

O. ARG. S. 13182, $13^h\ 43^m\ 46^s$.

May	23 . .	−27 37 23.6

(*), $13^h\ 43^m\ 49^s$.

June	10 . .	−37 29 59.9

LALANDE 25494, $13^h\ 44^m\ 21^s$.

May	21 . .	+21 53 30.9

PIAZZI XIII, 220, $13^h\ 44^m\ 24^s$.

May	21 . .	+21 54 46.7

κ CENTAURI, (1st *,) $13^h\ 44^m\ 25^s$.

June	18 . .	−32 21 28.6

κ CENTAURI, (2d *,) $13^h\ 44^m\ 25^s$.

June	18 . .	−32 21 31.9

i DRACONIS, $13^h\ 47^m\ 42^s$.

June	6 . .	+65 21 22.9

(*), $13^h\ 47^m\ 49^s$.

May	4 . .	−38 2 1.5
June	4 . .	2.1

(*), $13^h\ 52^m\ 45^s$.

June	10 . .	+23 30 2.6

WEISSE XII, 893, $13^h\ 53^m\ 15^s$.

May	23 . .	−12 5 5.2

(*), $13^h\ 55^m\ 32^s$.

June	12 . .	+77 7 35.9

(*), $13^h\ 58^m\ 19^s$.

May	4 . .	−33 4 50.5
June	4 . .	53.6

α DRACONIS, $14^h\ 0^m\ 56^s$.

June	6 . .	+64 59 18.2

α DRACONIS, S. P., $14^h\ 0^m\ 56^s$.

June	5 . .	+64 59 14.8
	9 . .	(12.8)
	12 . .	14.3
November	27 . .	17.5
December	13 . .	15.9

(*), $14^h\ 4^m\ 22^s$.

May	21 . .	−24 34 34.7
June	10 . .	35.0
	12 . .	35.2

(*), $14^h\ 12^m\ 38^s$.

1872.		° ′ ″
May	23 . .	−13 4 51.3

WEISSE XIV, 199, $14^h\ 12^m\ 38^s$.

June	4 . .	−13 7 6.5

WEISSE XIV, 236, $14^h\ 14^m\ 36^s$.

June	18 . .	− 4 37 36.7

WEISSE XIV, 257, $14^h\ 15^m\ 27^s$.

June	10 . .	− 4 43 27.0
	12 . .	24.1

LACAILLE 5932, $14^h\ 17^m\ 53^s$.

June	18 . .	−32 23 28.3

SCHWERD 835, $14^h\ 18^m\ 0^s$.

June	4 . .	+79 55 32.2

O. ARG. S. 13694, $14^h\ 24^m\ 28^s$.

May	23 . .	−23 59 22.7
June	10 . .	20.4

B. A. C. 4816, $14^h\ 27^m\ 5^s$.

June	18 . .	+37 31 33.8

5 URSÆ MINORIS, S. P., $14^h\ 27^m\ 49^s$.

January	5 . .	+76 15 53.7
	9 . .	53.1
	12 . .	52.8
	25 . .	53.2
December	4 . .	(57.2)
	13 . .	53.6

O. ARG. S. 13747, $14^h\ 29^m\ 5^s$.

May	28 . .	−27 41 43.2
June	4 . .	46.0
	12 . .	46.1

(*), $14^h\ 29^m\ 35^s$.

May	28 . .	−27 40 48.7

(*), $14^h\ 29^m\ 54^s$.

June	4 . .	−27 44 33.0

LACAILLE 6038, $14^h\ 33^m\ 11^s$.

May	21 . .	−35 34 57.0
	23 . .	57.2

(*), $14^h\ 34^m\ 17^s$.

June	10 . .	−32 15 50.7
	12 . .	53.1

58 HYDRÆ, $14^h\ 42^m\ 50^s$.

May	28 . .	−27 25 30.8
June	4 . .	30.9
	10 . .	31.7

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β URSÆ MINORIS, 14h 51m 6s.

1872.			° ′ ″
June	18	. .	+74 40 43.4

β URSÆ MINORIS, S. P., 14h 51m 6s.

January	5	. .	+74 40 41.8
	9	. .	41.7
	12	. .	42.6
	25	. .	42.5
	30	. .	43.4

WEISSE (2) XIV, 1130, (2d*,) 14h 52m 36s.

May	23	. .	+40 40 49.9
June	10	. .	46.5

LACAILLE 6218, 14h 57m 43s.

May	28	. .	−29 29 18.1

(*), 14h 57m 45s.

June	12	. .	+10 25 6.0
	18	. .	2.2

O. ARG. S. 14246, 14h 59m 3s.

July	2	. .	−21 31 54.5

ν1 LIBRÆ, 14h 59m 30s.

May	21	. .	−15 45 30.6
July	6	. .	30.8

O. ARG. S. 14294, 15h 1m 38s.

May	23	. .	−21 44 50.3

O. ARG. S. 14297, 15h 1m 41s.

May	23	. .	−21 43 25.9
June	10	. .	25.9

c BOOTIS, 15h 1m 42s.

June	4	. .	+25 22 9.7
July	6	. .	9.7

O. ARG. S. 14421, 15h 10m 5s.

June	18	. .	−30 0 16.0
	22	. .	17.1

δ BOOTIS, 15h 10m 25s.

May	28	. .	+33 47 36.8
June	4	. .	37.4
	28	. .	37.8

O. ARG. N., 15259, 15h 12m 24s.

June	10	. .	+67 20 3.2
July	2	. .	2.3

WEISSE XV, 265, 15h 16m 24s.

May	23	. .	−13 53 23.6
June	12	. .	25.1

ε LIBRÆ, 15h 17m 17s.

June	4	. .	− 9 51 36.8
	28	. .	36.0

B. A. C. 5140, 15h 19m 53s.

1872.			° ′ ″
May	28	. .	+87 43 15.5
June	10	. .	15.3
	18	. .	13.9
July	6	. .	16.4

γ2 URSÆ MINORIS, S. P., 15h 20m 56s.

January	5	. .	+72 17 21.0
	9	. .	19.5
	12	. .	20.2
	25	. .	19.8
	29	. .	22.2
	30	. .	22.3
February	1	. .	21.8

ζ1 LIBRÆ, 15h 21m 2s.

June	22	. .	−16 16 4.5
July	2	. .	5.1

LACAILLE 6410, 15h 24m 24s.

May	23	. .	−27 43 39.5
June	12	. .	41.1
	28	. .	38.6

LACAILLE 6421, 15h 26m 7s.

June	18	. .	−32 44 11.8

(*), 15h 26m 19s.

July	6	. .	−24 40 33.1

37 LIBRÆ, 15h 27m 12s.

June	4	. .	− 9 37 25.7
	10	. .	26.9

(*), 15h 27m 31s.

July	6	. .	−24 40 24.1

(*), 15h 29m 32s.

July	2	. .	−32 3 29.3

(*), 15h 33m 36s.

June	12	. .	−15 34 40.8

η LIBRÆ, 15h 36m 50s.

May	23	. .	−15 15 45.4
June	4	. .	45.5
	18	. .	46.9
	22	. .	45.5

χ LUPI, 15h 42m 50s.

May	21	. .	−33 14 4.9
	23	. .	3.4
June	22	. .	4.7

b SCORPII, 15h 43m 18s.

June	4	. .	−25 21 35.2
	10	. .	36.2

18 URSÆ MINORIS, 15h 46m 43s.

July	6	. .	+80 22 57.3

ζ URSÆ MINORIS, 15h 48m 36s.

1872.			° ′ ″
June	12	. .	+78 11 13.6

ζ URSÆ MINORIS, S. P., 15h 48m 41s.

January	5	. .	+78 11 12.0
	12	. .	12.0
	29	. .	14.3
	30	. .	13.9
February	1	. .	12.3

B. A. C. 5297, 15h 52m 42s.

May	21	. .	−29 15 45.0
	23	. .	45.3

B. A. C. 5352, S. P., 15h 56m 44s.

January	25	. .	+83 19 14.9

49 LIBRÆ, 15h 53m 12s.

May	28	. .	−16 9 14.5
June	4	. .	14.8
	10	. .	15.0

O. ARG. S. 15300, 16h 2m 3s.

May	23	. .	−16 55 (4.9)
June	4	. .	13.4
	10	. .	15.2

τ CORONÆ BOREALIS, 16h 4m 18s.

July	2	. .	+36 49 3.1
	12	. .	2.4

O. ARG. S. 15359, 16h 4m 38s.

June	12	. .	−29 49 6.3
	28	. .	4.8

GROOMBRIDGE 2320, 16h 5m 59s.

June	22	. .	+68 8 51.8

GROOMBRIDGE 2320, S. P., 16h 5m 59s.

January	5	. .	+68 8 49.2
	12	. .	47.9
	22	. .	50.6
	25	. .	48.6

γ HERCULIS, 16h 16m 14s.

June	4	. .	+19 27 20.0
	10	. .	18.7
	12	. .	19.3

η URSÆ MINORIS, 16h 21m 14s.

June	22	. .	+76 2 58.7
	28	. .	57.7
July	2	. .	56.5

η URSÆ MINORIS, S. P., 16h 21m 14s.

January	25	. .	+76 2 57.2
February	19	. .	57.5

η DRACONIS, 16h 22m 16s.

July	12	. .	+61 48 16.2

η DRACONIS, S. P., 16h 22m 16s.

1872.			° ′ ″
January	5	. .	+61 48 11.9
	12	. .	12.6
	22	. .	15.5

β HERCULIS, 16h 24m 43s.

June	22	. .	+21 46 13.6
July	2	. .	13.6

O. ARG. S. 15713, 16h 24m 54s.

June	4	. .	−20 28 30.6
	10	. .	32.7

A DRACONIS, S. P., 16h 28m 15s.

January	22	. .	+69 2 41.3
	25	. .	41.1
	29	. .	43.5
February	1	. .	41.9
	19	. .	42.7

O. ARG. S. 15782, 16h 30m 47s.

June	4	. .	−29 37 48.1
	10	. .	47.6

(*), 16h 33m 32s.

June	12	. .	−32 33 32.1
July	2	. .	33.0

O. ARG. S. 15847, 16h 34m 24s.

June	28	. .	−24 34 10.7

O. ARG. S. 15896, 16h 36m 52s.

July	5	. .	−27 12 48.8

η HERCULIS, 16h 38m 30s.

July	12	. .	+39 10 0.5

(*), 16h 43m 35s.

June	10	. .	−37 23 44.1

LACAILLE 7011, 16h 43m 50s.

June	10	. .	−37 22 44.9
	12	. .	43.6
	18	. .	41.5

LACAILLE 7023, 16h 44m 49s.

June	28	. .	−33 3 54.5
July	2	. .	55.5

50 HERCULIS, 16h 45m 39s.

June	22	. .	+30 1 37.5
July	5	. .	35.7
	12	. .	35.5

(*), 16h 52m 30s.

June	28	. .	−37 8 4.2

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(*), 16h 53m 16s.

1872.			°	′	″
June	18	. .	−37	6	35.0

ε Herculis, 16h 55m 23s.

June	12	. .	+31	6	59.8
July	5	. .			59.6

Weisse 1048, 16h 56m 15s.

July	12	. .	− 9	5	14.1

(*), 16h 56m 22s.

August	8	. .	−20	17	24.2

B. A. C. 5746, 16h 57m 20s.

July	2	. .	−20	18	43.6
August	8	. .			44.5

ε Ursæ Minoris, 16h 59m 10s.

August	20	. .	+82	14	37.8

ε Ursæ Minoris, S. P., 16h 59m 10s.

January	12	. .	+82	14	36.7
	22	. .			38.5
	29	. .			40.4
	30	. .			38.6
February	1	. .			38.6
	19	. .			38.3
	24	. .			36.4

O. Arg. S. 16574, 17h 10m 19s.

June	28	. .	−29	49	27.6
July	2	. .			29.4

w Herculis, 17h 15m 52s.

June	18	. .	+32	38	2.7
July	12	. .			0.8
August	8	. .			1.3

B. A. C. 5887, S. P., 17h 18m 12s.

January	29	. .	+71	55	27.6
	30	. .			29.0
February	1	. .			28.8
	19	. .			30.2

(*), 17h 18m 21s.

June	28	. .	−31	29	35.0
July	2	. .			(27.7)

b Ophiuchi, 17h 18m 33s.

August	8	. .	−24	3	17.8
	17	. .			17.6
	20	. .			17.1

O. Arg. S. 16832, 17h 21m 35s.

July	12	. .	−15	54	30.6

B. A. C. 5919, 17h 24m 56s.

June	18	. .	+ 2	49	22.5
July	5	. .			22.2

(*), 17h 26m 18s.

1872.			°	′	″
August	17	. .	−32	29	24.2

(*), 17h 28m 7s.

June	28	. .	−37	21	14.7
August	8	. .			15.8

(*), 17h 29m 12s.

August	8	. .	−37	19	28.4

B. A. C. 5960, 17h 31m 41s.

August	24	. .	−32	7	31.1
	30	. .			33.2

(*), 17h 31m 50s.

August	24	. .	−32	10	55.2
	30	. .			53.7

(*), 17h 33m 18s.

August	17	. .	−32	4	57.9
	20	. .			57.3

B. A. C. 5968, 17h 33m 21s.

August	20	. .	−32	2	30.7

f Draconis, S. P., 17h 33m 22s.

February	19	. .	+68	12	59.1

(*), 17h 33m 45s.

August	30	. .	−32	8	31.4

(*), 17h 34m 56s.

June	28	. .	−25	12	40.4

(*), 17h 35m 7s.

August	24	. .	−32	10	3.4

ι Herculis, 17h 35m 50s.

July	5	. .	+46	4	31.9
September	7	. .			32.6

ω Draconis, S. P., 17h 37m 42s.

January	22	. .	+68	48	60.4
	25	. .			59.1
February	1	. .			61.0
	26	. .			61.7

(*), 17h 37m 58s.

August	20	. .	−34	49	48.9

(*), 17h 38m 48s.

August	20	. .	−34	47	50.9

(*), 17h 38m 51s.

August	8	. .	−34	40	55.2

Lacaille 7435, 17h 39m 41s.

1872.			°	′	″
August	17	. .	−35	50	39.6

Lacaille 7469, 17h 44m 0s.

August	30	. .	−31	17	28.0
September	3	. .			27.6

O. Arg. S. 17284, 17h 44m 4s.

August	24	. .	−25	45	22.8

ψ^1 Draconis, 17h 44m 13s.

July	5	. .	+72	12	41.0

ψ^1 Draconis, S. P., 17h 44m 13s.

January	22	. .	+72	12	39.6
	25	. .			37.7
February	1	. .			38.3
	19	. .			39.3
	26	. .			39.2

ψ^2 Draconis, 17h 44m 43s.

July	5	. .	+72	13	9.3

ψ^2 Draconis, S. P., 17h 44m 43s.

February	19	. .	+72	13	9.5
	26	. .			8.4

(*), 17h 44m 48s.

August	8	. .	−34	41	48.0

(*), 17h 45m 43s.

August	8	. .	−34	41	46.8

(*), 17h 46m 28s.

August	17	. .	−34	43	11.7

B. A. C. 6051, 17h 46m 29s.

June	28	. .	−36	26	46.4

(*), 17h 47m 54s.

August	20	. .	−34	28	25.3

(*), 17h 48m 16s.

August	20	. .	−34	30	28.6

(*), 17h 48m 30s.

August	17	. .	−34	43	35.2

O. Arg. S. 17394, 17h 49m 41s.

August	30	. .	−25	3	44.6

B. A. C. 6074, (1st *,) 17h 50m 52s.

August	24	. .	−30	14	11.7

B. A. C. 6074, (2d *,) 17h 50m 52s.

August	24	. .	−30	14	16.1

O. Arg. S. 17447, 17h 52m 0s.

1872.			°	′	″
September	3	. .	−25	8	58.1

O. Arg. S. 17449, 17h 52m 7s.

August	30	. .	−25	4	25.5

(*), 17h 53m 1s.

June	28	. .	−36	57	16.0

35 Draconis, S. P., 17h 55m 11s.

January	25	. .	+76	58	39.8
February	26	. .			40.1

(*), 17h 56m 24s.

August	8	. .	−24	14	39.2

(*), 17h 56m 25s.

August	8	. .	−24	11	3.8

(*), 17h 57m 2s.

August	20	. .	−23	35	58.3

70 Ophiuchi, (1st *,) 17h 58m 59s.

June	28	. .	+ 2	31	54.2
August	24	. .			53.0
	30	. .			54.0

70 Ophiuchi, (2d *,) 17h 58m 59s.

August	24	. .	+ 2	31	51.8
	30	. .			53.2

ε Telescopii, 18h 1m 43s.

August	17	. .	−45	58	25.8
September	3	. .			26.7

73 Ophiuchi, 18h 3m 12s.

September	7	. .	+ 3	58	25.6
	14	. .			25.5

Dorpat 2288, 18h 3m 50s.

August	30	. .	+ 2	30	28.4

O. Arg. S. 17817, 18h 5m 3s.

July	5	. .	−21	0	(45.9)
August	8	. .			52.0

40 Draconis, 18h 9m 41s.

February	26	. .	+79	58	52.2

41 Draconis, 18h 9m 41s.

February	26	. .	+79	59	3.9

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18 SAGITTARII, $18^h\ 13^m\ 1^s$.

1872.			°	′	″
July	5	. .	−30	59	40.1
August	17	. .			39.5
	20	. .			38.8

δ URSÆ MINORIS, $18^h\ 13^m\ 38^s$.

August	24	. .	+86	36	24.3

δ URSÆ MINORIS, S. P., $18^h\ 13^m\ 38^s$.

January	25	. .	+86	36	23.3
February	19	. .			24.8

TAYLOR 8458, $18^h\ 14^m\ 23^s$.

August	30	. .	−26	28	24.7
September	3	. .			23.2
	7	. .			26.6

(*), $18^h\ 14^m\ 36^s$.

August	30	. .	−26	30	16.2
September	3	. .			16.8

(*), $18^h\ 14^m\ 39^s$.

August	30	. .	−26	30	59.8
September	3	. .			62.2

ε SAGITTARII, $18^h\ 15^m\ 42^s$.

June	28	. .	−34	26	30.3
August	8	. .			32.7

O. ARG. S. 18151, $18^h\ 16^m\ 12^s$.

September	7	. .	−26	30	38.4

B. A. C. 6256, $18^h\ 19^m\ 20^s$.

August	17	. .	−31	35	11.3
	20	. .			13.4

d SERPENTIS, $18^h\ 20^m\ 49^s$.

September	14	. .	+ 0	7	19.4

(*), $18^h\ 21^m\ 6^s$.

August	17	. .	−31	38	10.3
	20	. .			10.1

24 SAGITTARII, $18^h\ 26^m\ 4^s$.

September	7	. .	−24	7	31.9

1 AQUILÆ, $18^h\ 28^m\ 15^s$.

August	8	. .	− 8	19	53.0
	24	. .			52.7
	30	. .			52.0
September	3	. .			52.8

B. A. C. 6375, $18^h\ 35^m\ 54^s$.

September	14	. .	+77	26	42.4
	27	. .			42.5

B. A. C. 6375, S. P., $18^h\ 35^m\ 54^s$.

February	19	. .	+77	26	42.6

ϕ SAGITTARII, $18^h\ 37^m\ 40^s$.

1872.			°	′	″
August	8	. .	−27	7	10.2
	17	. .			10.0

5 AQUILÆ, (1st *,) $18^h\ 39^m\ 54^s$.

August	30	. .	− 1	5	39.2
September	3	. .			39.0

5 AQUILÆ, (2d *,) $18^h\ 39^m\ 54^s$.

August	30	. .	− 1	5	46.0
September	3	. .			46.2

ν^1 SAGITTARII, $18^h\ 46^m\ 27^s$.

September	14	. .	−22	53	59.2

σ SAGITTARII, $18^h\ 47^m\ 20^s$.

August	8	. .	−26	27	11.1
	17	. .			11.5
	24	. .			10.0

GROOMBRIDGE 2719, $18^h\ 48^m\ 56^s$.

September	24	. .	+73	56	12.5

ξ^2 SAGITTARII, $18^h\ 50^m\ 7^s$.

August	30	. .	−21	16	19.7
September	3	. .			19.9

50 DRACONIS, $18^h\ 50^m\ 29^s$.

September	21	. .	+75	16	56.0

50 DRACONIS, S. P., $18^h\ 50^m\ 29^s$.

February	26	. .	+75	16	55.8
March	16	. .			53.9

(*), $18^h\ 55^m\ 57^s$.

September	14	. .	− 7	28	56.1

DORPAT 2434, (1st *,) $18^h\ 56^m\ 9^s$.

August	24	. .	− 0	53	20.7
	30	. .			20.6
September	3	. .			20.8

DORPAT 2434, (2d *,) $18^h\ 56^m\ 9^s$.

August	24	. .	− 0	53	38.2
	30	. .			39.2
September	3	. .			39.8

υ DRACONIS, $18^h\ 56^m\ 24^s$.

September	7	. .	+71	7	34.0

υ DRACONIS, S. P., $18^h\ 56^m\ 24^s$.

March	19	. .	+71	7	31.8

τ SAGITTARII, $18^h\ 58^m\ 57^s$.

August	8	. .	−27	51	17.7
	17	. .			18.1

B. A. C. 6525, $18^h\ 59^m\ 28^s$.

1872.			°	′	″
September	21	. .	−28	49	54.0

WEISSE XIX, 1539, $19^h\ 0^m\ 26^s$.

September	19	. .	+13	38	51.3
	24	. .			52.6

(*), $19^h\ 0^m\ 33^s$.

September	19	. .	+13	35	20.9

23 AQUILÆ, $19^h\ 12^m\ 3^s$.

August	30	. .	+ 0	51	17.9
September	3	. .			16.6

δ DRACONIS, $19^h\ 12^m\ 32^s$.

September	7	. .	+67	26	12.2
	21	. .			10.8

δ DRACONIS, S. P., $19^h\ 12^m\ 32^s$.

February	26	. .	+67	26	10.7
March	16	. .			10.6

DORPAT 2497, (1st *,) $19^h\ 13^m\ 43^s$.

September	14	. .	+ 5	21	42.7
	19	. .			41.7

DORPAT 2497, (2d *,) $19^h\ 13^m\ 43^s$.

September	14	. .	+ 5	21	12.1
	19	. .			12.8

ρ^2 SAGITTARII, $19^h\ 14^m\ 24^s$.

August	8	. .	−18	32	35.3
	24	. .			34.1

τ DRACONIS, S. P., $19^h\ 17^m\ 59^s$.

March	19	. .	+73	7	1.4

O. ARG. S. 19551, $19^h\ 19^m\ 27^s$.

August	30	. .	−26	11	21.6

π DRACONIS, $19^h\ 20^m\ 0^s$.

September	24	. .	+65	28	7.9

(*), $19^h\ 21^m\ 44^s$.

August	24	. .	−26	3	39.7
September	3	. .			42.6

B. A. C. 6702, $19^h\ 26^m\ 3^s$.

October	1	. .	+76	18	16.9

B. A. C. 6702, S. P., $19^h\ 26^m\ 3^s$.

February	26	. .	+76	18	16.7
March	21	. .			15.7

h^1 SAGITTARII, $19^h\ 28^m\ 17^s$.

August	24	. .	−24	59	48.4
September	14	. .			48.7
	24	. .			48.7

(*), $19^h\ 29^m\ 10^s$.

1872.			°	′	″
September	3	. .	+19	30	45.0

(*), $19^h\ 29^m\ 16^s$.

August	30	. .	+19	31	3.0
September	3	. .			2.5

(*), $19^h\ 30^m\ 0^s$.

August	30	. .	+19	30	49.2

(*), $19^h\ 30^m\ 3^s$.

August	30	. .	+19	30	28.1
September	3	. .			26.6
	19	. .			27.7

σ DRACONIS, S. P., $19^h\ 32^m\ 34^s$.

March	16	. .	+69	26	35.2

a SAGITTÆ, $19^h\ 34^m\ 17^s$.

August	24	. .	+17	43	17.0
September	7	. .			16.2

B. A. C. 6752, $19^h\ 35^m\ 40^s$.

October	8	. .	+71	19	15.6

B. A. C. 6753, $19^h\ 37^m\ 19^s$.

August	30	. .	−31	12	24.5
September	14	. .			25.4

f SAGITTARII, $19^h\ 38^m\ 54^s$.

September	19	. .	−20	3	59.5

(*), $19^h\ 43^m\ 31^s$.

October	1	. .	+69	2	16.6

B. A. C. 6808, $19^h\ 44^m\ 29^s$.

September	21	. .	+69	1	28.5
October	1	. .			26.7

B. A. C. 6808, S. P., $19^h\ 44^m\ 29^s$.

February	26	. .	+69	1	26.8
March	23	. .			27.3

57 AQUILÆ, (1st *,) $19^h\ 47^m\ 39^s$.

August	30	. .	− 8	33	28.2
September	3	. .			31.3

57 AQUILÆ, (2d *,) $19^h\ 47^m\ 39^s$.

August	30	. .	− 8	34	3.7
September	3	. .			6.1

ω SAGITTARII, $19^h\ 48^m\ 0^s$.

August	24	. .	−26	38	11.1
September	7	. .			12.7

ξ AQUILÆ, $19^h\ 48^m\ 3^s$.

September	24	. .	+ 8	7	56.5
	27	. .			57.0

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ε DRACONIS, 19h 48m 35s.

1872.			°	′	″
October	15	. .	+69	56	30.5

ε DRACONIS, S. P., 19h 48m 35s.

March	21	. .	+69	56	31.7
	27	. .			28.7

(*), 19h 49m 6s.

September	14	. .	−22	42	19.6
	19	. .			20.1

λ URSÆ MINORIS, 19h 52m 18s.

October	8	. .	+88	55	22.0

λ URSÆ MINORIS, S. P., 19h 52m 18s.

March	16	. .	+88	55	21.7
	19	. .			23.5

O. ARG. S. 20145, 19h 53m 12s.

August	24	. .	−22	59	2.5
September	7	. .			7.1

B. A. C. 6872, 19h 55m 4s.

August	30	. .	−38	17	32.1
September	3	. .			32.0

LACAILLE 8317, 19h 55m 14s.

September	27	. .	−36	24	49.4
October	1	. .			52.2

LACAILLE 8318, 19h 55m 40s.

August	30	. .	−38	13	5.8
September	3	. .			6.7

LACAILLE 8326, 19h 56m 54s.

September	14	. .	−36	44	12.7
	19	. .			13.4

LACAILLE 8340, 19h 59m 1s.

September	7	. .	−35	53	47.8
	24	. .			45.8

64 AQUILÆ, 20h 1m 25s.

August	24	. .	− 1	2	39.2
September	3	. .			40.4
	14	. .			41.1

19 VULPECULÆ, 20h 6m 27s.

August	30	. .	+26	25	44.9
September	7	. .			43.4

(*), 20h 6m 36s.

August	30	. .	+26	21	48.1
September	7	. .			46.8

63 CYGNI, 20h 9m 44s.

September	19	. .	+36	24	55.6
	21	. .			57.0

B. A. C. 6969, 20h 9m 52s.

1872.			°	′	″
August	24	. .	+36	21	48.6
September	21	. .			48.4

κ CEPHEI, 20h 13m 9s.

September	24	. .	+77	19	31.1
October	1	. .			28.6
	8	. .			29.7

κ CECHEI, S. P., 20h 13m 9s.

March	27	. .	+77	19	29.0
April	4	. .			27.1
	5	. .			28.6

γ CYGNI, 20h 17m 38s.

September	3	. .	+39	50	52.7
	7	. .			52.3

B. A. C. 7047, 20h 17m 46s.

September	27	. .	+64	16	50.4

π CAPRICORNI, 20h 19m 59s.

September	24	. .	−18	37	44.2
October	15	. .			45.0

WEISSE XX, 498, 20h 21m 17s.

September	19	. .	−13	34	34.8
	21	. .			36.0

WEISSE XX, 499, 20h 21m 19s.

September	19	. .	−13	34	23.7
	21	. .			26.0

41 CYGNI, 20h 24m 9s.

October	15	. .	+29	56	33.7

(*), 20h 24m 10s.

September	7	. .	−29	56	50.0

τ1 CAPRICORNI, 20h 30m 10s.

September	24	. .	−15	35	17.4
October	8	. .			18.3

B. A. C. 7124, 20h 30m 33s.

October	15	. .	+72	5	52.7

B. A. C. 7124, S. P., 20h 30m 33s.

February	26	. .	+72	5	51.0
March	16	. .			50.1
	19	. .			50.8

β DELPHINI, 20h 31m 34s.

September	21	. .	+14	9	5.3
	27	. .			3.2

LACAILLE 8559, 20h 40m 2s.

September	14	. .	−43	28	31.0
	19	. .			25.5

4 CEPHEI, 20h 41m 36s.

1872.			°	′	″
September	27	. .	+66	11	33.1
October	1	. .			32.2
	15	. .			33.3

4 CEPHEI, S. P., 20h 41m 36s.

February	26	. .	+66	11	33.2
March	21	. .			32.2

a MICROSCOPII, 20h 42m 0s.

September	21	. .	−34	15	4.9
	24	. .			3.1
October	8	. .			3.4

7 AQUARII, 20h 49m 59s.

September	14	. .	−10	11	10.5
	19	. .			11.3
	21	. .			11.8

76 DRACONIS, 20h 51m 40s.

October	8	. .	+82	3	20.1

12-YEAR 1879, 20h 53m 19s.

October	21	. .	+80	4	15.2

12-YEAR 1879, S. P., 20h 53m 19s.

April	5	. .	+80	4	14.6
	10	. .			14.3

LACAILLE 8657, 20h 55m 55s.

September	14	. .	−43	35	24.6
	19	. .			25.0

B. A. C. 7363, 21h 5m 40s.

September	21	. .	+70	55	8.9
	24	. .			(10.0)
October	1	. .			7.5
	15	. .			8.5
	29	. .			7.9

B. A. C. 7363, S. P., 21h 5m 38s.

March	21	. .	+70	55	6.9
April	2	. .			6.1
	4	. .			8.3

77 DRACONIS, S. P., 21h 7m 58s.

March	29	. .	+77	36	23.0

(*), 21h 9m 46s.

September	14	. .	−39	21	37.0
	19	. .			36.4

15 AQUARII, 21h 11m 29s.

September	27	. .	− 5	3	18.6
October	8	. .			17.9
	15	. .			18.8

v CYGNI, 21h 12m 40s.

October	21	. .	+34	21	37.7
	29	. .			37.8

16 AQUARII, 21h 14m 22s.

1872.			°	′	″
September	19	. .	− 5	6	6.0
	24	. .			4.9

ι CAPRICORNI, 21h 15m 8s.

September	14	. .	−17	22	38.6
	27	. .			40.0

34 VULPECULÆ, 21h 15m 18s.

October	1	. .	+23	19	5.1
	8	. .			6.8

a CEPHEI, S. P., 21h 15m 31s.

March	27	. .	+62	2	34.7

B. A. C. 7467, 21h 23m 3s.

September	14	. .	−25	45	5.2
	19	. .			5.8
	24	. .			5.3

B. A. C. 7504, 21h 24m 35s.

October	31	. .	+86	31	10.5

O. ARG. S. 21452, 21h 25m 18s.

September	21	. .	−24	42	49.0
	27	. .			48.8

β CEPHEI, 21h 27m 0s.

October	21	. .	+69	59	56.8

β CEPHEI, S. P., 21h 27m 0s.

April	2	. .	+69	59	56.4
	13	. .			56.2
	17	. .			57.7

(*), 21h 28m 3s.

October	1	. .	+ 1	25	30.7

B. A. C. 7497, 21h 28m 12s.

October	8	. .	+ 1	15	42.4
	15	. .			41.5

B. A. C. 7509, 21h 29m 0s.

November	4	. .	+75	50	30.3

B. A. C. 7509, S. P., 21h 29m 0s.

March	21	. .	+75	50	26.7

9 CEPHEI, 21h 34m 31s.

September	21	. .	+61	30	18.9
	24	. .			19.7
	27	. .			18.0

9 CEPHEI, S. P., 21h 34m 30s.

March	23	. .	+61	30	16.2

O. ARG. N., 22729, 21h 37m 23s.

October	21	. .	+70	43	55.8

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c^1 CAPRICORNI, $21^h\ 38^m\ 11^s$.

1872.			°	′	″
September	14	. .	− 9	40	7.2
	19	. .			8.0

11 CEPHEI, $21^h\ 40^m\ 2^s$.

October	21	. .	+70	43	21.4
	29	. .			20.8
	31	. .			21.1

11 CEPHEI, S. P., $21^h\ 40^m\ 2^s$.

March	21	. .	+70	43	19.8

B. A. C. 7584, $21^h\ 40^m\ 8^s$.

September	27	. .	+24	59	42.9
October	15	. .			41.4

B. A. C. 7586, $21^h\ 40^m\ 34^s$.

September	27	. .	+24	58	19.1
October	15	. .			18.7

78 DRACONIS, S. P., $21^h\ 41^m\ 39^s$.

March	23	. .	+71	43	59.1
April	5	. .			60.0

(*), $21^h\ 46^m\ 14^s$.

September	19	. .	− 7	5	52.9
October	21	. .			53.3

LACAILLE 8952, $21^h\ 46^m\ 37^s$.

October	31	. .	−36	39	46.2
November	4	. .			45.1

(*), $21^h\ 47^m\ 30^s$.

October	15	. .	−11	57	29.2

79 DRACONIS, $21^h\ 51^m\ 16^s$.

October	8	. .	+73	5	51.2
	29	. .			48.9
November	4	. .			51.4
	9	. .			49.5
	20	. .			47.9

79 DRACONIS, S. P., $21^h\ 51^m\ 16^s$.

April	5	. .	+73	5	47.7
	17	. .			49.0

Lacaille 9005, $21^h\ 55^m\ 52^s$.

September	19	. .	−27	40	2.9
	21	. .			2.1

(*), $21^h\ 56^m\ 3^s$.

September	27	. .	−26	16	5.4
October	1	. .			2.6
	15	. .			6.4

B. A. C. 7678, $21^h\ 56^m\ 13^s$.

October	21	. .	+79	41	56.2
	31	. .			56.2
November	9	. .			55.8

B. A. C. 7678., S. P., $21^h\ 56^m\ 13^s$.

1872.			°	′	″
March	21	. .	+79	41	54.9
	23	. .			54.6
	27	. .			54.2
April	13	. .			55.7
	24	. .			54.5
	29	. .			56.2

ξ CEPHEI, S. P., $22^h\ 0^m\ 3^s$.

April	19	. .	+64	0	14.6

(*), $22^h\ 0^m\ 9^s$.

November	20	. .	−11	1	54.5

(*), $22^h\ 3^m\ 11^s$.

September	24	. .	−38	35	28.4

LACAILLE 9045, $22^h\ 3^m\ 50^s$.

October	8	. .	−38	40	31.1
	15	. .			32.9
	29	. .			31.0

O. ARG. S. 21964, $22^h\ 4^m\ 40^s$.

September	19	. .	−22	0	10.1
October	1	. .			10.0

λ PISCIS AUSTRALIS, $22^h\ 7^m\ 4^s$.

September	27	. .	−28	23	59.4
October	31	. .			59.8

24 CEPHEI, S. P., $22^h\ 7^m\ 21^s$.

March	23	. .	+71	42	39.4

B. A. C. 7772, $22^h\ 9^m\ 58^s$.

September	19	. .	− 2	13	58.5
	21	. .			56.8

ρ AQUARII, $22^h\ 13^m\ 29^s$.

October	21	. .	− 8	27	46.1

30 PEGASI, $22^h\ 14^m\ 1^s$.

September	24	. .	+ 5	8	52.5
October	8	. .			52.2

O. ARG. S. 22092, $22^h\ 14^m\ 32^s$.

October	10	. .	−22	14	18.2
	15	. .			19.6

(*), $22^h\ 15^m\ 47^s$.

October	29	. .	− 8	6	37.3
	31	. .			(41.3)
November	4	. .			37.2

(*), $22^h\ 16^m\ 7^s$.

October	29	. .	− 8	6	5.5
	31	. .			3.1
November	4	. .			3.0

(*), $22^h\ 17^m\ 28^s$.

September	19	. .	+20	13	4.6

33 PEGASI, $22^h\ 17^m\ 30^s$.

September	19	. .	+20	12	8.2
October	21	. .			9.5

B. A. C. 7810, $22^h\ 17^m\ 57^s$.

1872.			°	′	″
November	20	. .	+66	3	37.1

B. A. C. 7810, S. P., $22^h\ 17^m\ 57^s$.

March	27	. .	+66	3	34.8
April	29	. .			34.9
May	4	. .			34.7

π AQUARII, $22^h\ 18^m\ 45^s$.

October	1	. .	+ 0	43	44.7
November	7	. .			44.0

(*), $22^h\ 19^m\ 13^s$.

September	24	. .	−28	59	57.9
October	8	. .			58.1

WEISSE XXII, 449,(2d *,) $22^h\ 22^m\ 20^s$.

October	29	. .	−10	35	53.1
November	9	. .			55.3
	18	. .			53.8

26 CEPHEI, S. P., $22^h\ 23^m\ 1^s$.

April	2	. .	+64	28	45.5
	24	. .			(41.2)

B. A. C. 7851, S. P., $22^h\ 23^m\ 11^s$.

March	21	. .	+85	27	45.1

σ AQUARII, $22^h\ 23^m\ 52^s$.

October	10	. .	−11	19	54.2
	15	. .			55.8

ANONYMOUS, $22^h\ 26^m\ 36^s$.

November	4	. .	−28	6	43.7
	20	. .			38.8

(*), $22^h\ 26^m\ 50^s$.

October	8	. .	−37	19	45.6
November	7	. .			46.5

(*), $22^h\ 27^m\ 21^s$.

October	15	. .	−28	3	6.0

226 CEPHEI, (B.,) $22^h\ 30^m\ 3^s$.

November	9	. .	+75	34	1.6

κ AQUARII, $22^h\ 31^m\ 9^s$.

October	1	. .	− 4	53	13.2
	10	. .			12.8

30 CEPHEI, $22^h\ 34^m\ 9^s$.

October	15	. .	+62	55	10.3
November	7	. .			11.2

B. A. C. 7941, $22^h\ 39^m\ 3^s$.

November	4	. .	+80	43	23.6

B. A. C. 7941, S. P., $22^h\ 39^m\ 3^s$.

April	2	. .	+80	43	21.2
May	4	. .			21.5

ξ PEGASI, $22^h\ 40^m\ 19^s$.

1872.			°	′	″
October	1	. .	+11	31	1.3
	8	. .			3.2

ι CEPHEI, $22^h\ 45^m\ 8^s$.

October	31	. .	+65	31	39.6
November	7	. .			41.7
	23	. .			41.2

ι CEPHEI, S. P., $22^h\ 45^m\ 8^s$.

April	29	. .	+65	31	38.4
May	4	. .			38.4

LACAILLE 9286, $22^h\ 45^m\ 9^s$.

October	8	. .	−39	58	45.0
	15	. .			46.7
November	9	. .			42.2

λ PISCIS AUSTRALIS, $22^h\ 45^m\ 24^s$.

October	10	. .	−33	33	12.0
	29	. .			12.4

LALANDE 44848, $22^h\ 48^m\ 35^s$.

November	18	. .	+35	18	7.8
	20	. .			9.0

(*), $22^h\ 48^m\ 56^s$.

November	18	. .	+35	20	46.0
	20	. .			46.6

(*), $22^h\ 48^m\ 58^s$.

November	18	. .	+35	19	5.3
	20	. .			1.8

B. A. C. 8002, $22^h\ 52^m\ 39^s$.

November	27	. .	−30	8	51.4

WEISSE XXII, 1088, $22^h\ 53^m\ 3^s$.

October	31	. .	− 5	2	51.9

81 AQUARII, $22^h\ 54^m\ 56^s$.

October	1	. .	− 7	44	52.0
	8	. .			49.8

82 AQUARII, $22^h\ 55^m\ 54^s$.

October	10	. .	− 7	15	37.0
	15	. .			38.6

β PISCIUM, $22^h\ 57^m\ 24^s$.

November	23	. .	+ 3	7	53.8

β PEGASI, $22^h\ 57^m\ 35^s$.

October	29	. .	+27	23	20.8
November	4	. .			21.9

LACAILLE 9359, $22^h\ 57^m\ 55^s$.

November	18	. .	−27	49	30.7
	20	. .			30.0

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LALANDE 45323, $23^h\ 2^m\ 58^s$.

1872.			°	′	″
November	27	. .	+38	13	25.0

c^3 AQUARII, $23^h\ 3^m\ 5^s$.

October	1	. .	−23	9	2.2
	8	. .			0.7

π CEPHEI, S. P., $23^h\ 3^m\ 50^s$.

April	2	. .	+74	41	43.9

O. ARG. S. 22691, $23^h\ 7^m\ 34^s$.

October	15	. .	−18	4	23.1
	29	. .			(16.0)

LACAILLE 9415, $23^h\ 9^m\ 21^s$.

November	20	. .	−41	21	40.8
	23	. .			43.8

ψ^2 AQUARII, $23^h\ 11^m\ 15^s$.

November	18	. .	− 9	52	50.0
	27	. .			50.5

LACAILLE 9443, $23^h\ 12^m\ 46^s$.

November	7	. .	−42	39	41.0

o CEPHEI, S. P., $23^h\ 13^m\ 25^s$.

1872.			°	′	″
April	4	. .	+67	24	39.7
May	7	. .			39.7

64 PEGASI, $23^h\ 15^m\ 40^s$.

October	10	. .	+31	6	43.9
	29	. .			42.0

(*), $23^h\ 20^m\ 17^s$.

November	27	. .	+66	13	4.7
December	4	. .			4.1

B. A. C. 8180, $23^h\ 21^m\ 55^s$.

November	4	. .	+69	39	(24.4)
	18	. .			20.2

B. A. C. 8180, S. P., $23^h\ 21^m\ 55^s$.

May	7	. .	+69	39	19.1

11 PISCIUM, $23^h\ 22^m\ 53^s$.

October	10	. .	− 2	29	41.0
	15	. .			43.3
	29	. .			42.1

B. A. C. 8213, $23^h\ 27^m\ 47^s$.

November	9	. .	+86	36	4.5

B. A. C. 8213, S. P., $23^h\ 27^m\ 47^s$.

1872.			°	′	″
April	24	. .	+86	36	2.9
May	13	. .			4.8

WEISSE XXIII, 609, $23^h\ 30^m\ 40^s$.

November	27	. .	− 1	49	23.7

WEISSE (2) XXIII, 639, $23^h\ 30^m\ 55^s$.

December	4	. .	+35	5	29.9
	13	. .			29.5

WEISSE (2) XXIII, 658, $23^h\ 31^m\ 11^s$.

December	4	. .	+35	6	28.8
	13	. .			28.0

75 PEGASI, $23^h\ 31^m\ 29^s$.

October	15	. .	+17	41	31.1
	29	. .			31.6

γ CEPHEI, $23^h\ 34^m\ 7^s$.

October	31	. .	+76	55	4.2

WEISSE XXIII, 767, $23^h\ 38^m\ 30^s$.

November	27	. .	− 1	22	15.3
December	4	. .			16.0

(*), $23^h\ 41^m\ 28^s$.

1872.			°	′	″
December	13	. .	+63	26	1.8

B. A. C. 8273, $23^h\ 41^m\ 52^s$.

October	10	. .	+67	5	45.5
	29	. .			44.8
	31	. .			44.9
November	4	. .			46.9
	7	. .			44.7
	18	. .			44.0
	20	. .			45.1
	23	. .			46.0

B. A. C. 8273, S. P., $23^h\ 41^m\ 52^s$.

April	10	. .	+67	5	43.0

(*), $23^h\ 45^m\ 27^s$.

December	4	. .	−32	5	1.5

B. A. C. 8314, $23^h\ 48^m\ 41^s$.

November	7	. .	+73	41	53.7
	9	. .			54.4
	23	. .			54.4

B. A. C. 8314, S. P., $23^h\ 48^m\ 41^s$.

May	13	. .	+73	41	52.5

B. A. C. 8336, S. P., $23^h\ 53^m\ 29^s$.

April	22	. .	+85	59	38.0
May	10	. .			36.1

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MEAN PLACES

OF

MISCELLANEOUS STARS

GIVEN BY

INDIVIDUAL OBSERVATIONS

WITH THE

TRANSIT CIRCLE.

1872.

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MEAN PLACES OF MISCELLANEOUS STARS FOR 1872.0,

GIVEN BY

INDIVIDUAL OBSERVATIONS

WITH THE

TRANSIT CIRCLE.

44 Piscium.

1872.		h. m. s.	° ′ ″
July 5	S.	0 18 50.51	88 46
Nov. 4	F.	50.38	9.5
12	F.	50.27	8.9
20	F.	50.53	11.0
Mean . . .		0 18 50.422	88 46 9.80
Div., Flex., etc.		. .	— 0.37

10 Ceti.

1872.		h. m. s.	° ′ ″
Nov. 23	E.	0 20 3.50	90 45 31.9
27	E.	3.63	31.9
Dec. 5	E.	3.62	31.6
Mean . . .		0 20 3.583	90 45 31.80
Div., Flex., etc.		. .	— 0.45

51¹ Piscium.

1872.		h. m. s.	° ′ ″
Nov. 4	F.	0 25 47.54	83 45 7.0
8	F.	47.61	6.7
12	F.	47.38	5.9
Mean . . .		0 25 47.510	83 45 6.53
Div., Flex., etc.		. .	— 0.34

δ Andromedæ.

1872.		h. m. s.	° ′ ″
Jan. 26	S.	0 32 29.24	

62 Piscium.

1872.		h. m. s.	° ′ ″
Nov. 8	F.	0 41 39.05	83 23 57.2
15	E.	39.13	58.2
23	E.	39.05	57.2
Mean . . .		0 41 39.077	83 23 57.53
Div., Flex., etc.		. .	— 0.33

B. A. C. 221.

1872.		h. m. s.	° ′ ″
Nov. 12	F.	0 41 40.10	85 22
20	F.	40.16	41.2
27	E.	40.37	41.9
Dec. 5	E.	40.42	41.6
Mean . . .		0 41 40.262	85 22 41.57
Div., Flex., etc.		. .	— 0.39

δ Piscium.

1872.		h. m. s.	° ′ ″
Jan. 26	S.	0 42 2.61	83 6 43.5
July 5	S.	2.63	44.8
Mean . . .		0 42 2.620	83 6 44.15
Div., Flex., etc.		. .	— 0.32

e Piscium.

1872.		h. m. s.	° ′ ″
Nov. 7	E.	1 1 46.72	85 1 43.9
8	F.	46.65	40.6
12	F.	46.60	43.4
Mean . . .		1 1 46.657	85 1 42.63
Div., Flex., etc.		. .	— 0.38

33 Ceti.

1872.		h. m. s.	° ′ ″
Nov. 7	E.	1 3 58.45	88 14 10.3
8	F.	58.42	10.4
12	F.	58.41	11.3
Mean . . .		1 3 58.427	88 14 10.67
Div., Flex., etc.		. .	— 0.36

ζ¹ Piscium.

1872.		h. m. s.	° ′ ″
July 5	S.	1 7 2.74	83 6 9.5
Nov. 12	F.	2.67	7.9
20	F.	2.75	7.2
Mean . . .		1 7 2.720	83 6 8.20
Div., Flex., etc.		. .	— 0.32

f Piscium.

1872.		h. m. s.	° ′ ″
Nov. 23	E.	1 11 11.87	87 3 37.9
28	F.	12.01	38.1
Dec. 5	E.	12.10	37.0
Mean . . .		1 11 11.993	87 3 37.67
Div., Flex., etc.		. .	— 0.40

94 Piscium.

1872.		h. m. s.	° ′ ″
Nov. 15	E.	1 19 47.03	71 25 24.3
20	F.	47.12	25.0
28	F.	47.15	25.5
Mean . . .		1 19 47.100	71 25 24.93
Div., Flex., etc.		. .	— 0.09

101 Piscium.

1872.		h. m. s.	° ′ ″
Nov. 7	E.	1 28 55.96	75 59 37.3
15	E.	55.92	35.7
23	E.	55.86	37.2
27	E.	55.93	37.7
28	F.	56.04	38.4
Mean . . .		1 28 55.942	75 59 37.26
Div., Flex., etc.		. .	— 0.10

π Piscium.

1872.		h. m. s.	° ′ ″
Jan. 26	S.	1 30 18.84	78 30
Nov. 26	S.	18.93	50.0
Dec. 5	E.	18.96	50.2
9	E.	18.97	48.6
Mean . . .		1 30 18.925	78 30 49.60
Div., Flex., etc.		. .	— 0.15

ν Piscium.

1872.		h. m. s.	° ′ ″
Jan. 26	S.	1 34 46.36	85 9 38.5
Nov. 12	F.	46.33	41.2
26	S.	46.31	39.4
28	F.	46.42	40.1
Mean . . .		1 34 46.355	85 9 39.80
Div., Flex., etc.		. .	— 0.38

γ Andromedæ.

1872.		h. m. s.	° ′ ″
July 4	S.	1 56 2.90	48 17 5.5
Div., Flex., etc.		. .	— 0.14

ξ Arietis.

1872.		h. m. s.	° ′ ″
Jan. 10	S.	2 17 57.50	79 58 12.5
17	F.	57.48	13.4
Nov. 28	F.	57.53	12.9
Mean . . .		2 17 57.503	79 58 12.93
Div., Flex., etc.		. .	— 0.20

ξ² Ceti.

1872.		h. m. s.	° ′ ″
Jan. 10	S.	2 21 21.36	82 6 53.2
Nov. 28	F.	21.37	54.4
Dec. 2	E.	21.33	53.8
Mean . . .		2 21 21.353	82 6 53.80
Div., Flex., etc.		. .	— 0.30

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μ Arietis.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	2 35 9.16	70 32 7.9
Nov. 26 S.	9.19	7.2
Dec. 4 S.	9.19	5.7
Mean . . .	2 35 9.180	70 32 6.93
Div., Flex., etc.	. .	— 0.08

B. A. C. 830.

1872.	h. m. s.	° ′ ″
Nov. 28 F.	2 35 35.59	79 48 19.7
Dec. 2 F.	35.56	23.6
5 E.	35.62	18.8
Mean . . .	2 35 35.590	79 48 20.70
Div., Flex., etc.	. .	— 0.19

38 Arietis.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	2 37 59.28	78 5 41.0
Nov. 25 F.	59.28	40.4
Dec. 5 E.	59.30	39.4
Mean . . .	2 37 59.287	78 5 40.27
Div., Flex., etc.	. .	— 0.14

μ Ceti.

1872.	h. m. s.	° ′ ″
Oct. 16 S.	2 38 1.58	80 25 40.2
Dec. 2 F.	1.58	39.1
4 S.	1.53	38.7
Mean . . .	2 38 1.563	80 25 39.33
Div., Flex., etc.	. .	— 0.23

40 Arietis.

1872.	h. m. s.	° ′ ″
Nov. 26 S.	2 41 21.73	72 15 2.7
Dec. 2 F.	21.77	3.6
5 E.	21.73	3.4
Mean . . .	2 41 21.743	72 15 3.23
Div., Flex., etc.	. .	— 0.07

σ Arietis.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	2 44 25.72	75 26 48.6
Oct. 16 S.	25.79	48.3
Nov. 26 S.	25.67	48.2
Mean . . .	2 44 25.727	75 26 48.37
Div., Flex., etc.	. .	— 0.08

ρ^3 Arietis.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	2 49 12.75	72 29 19.8
Nov. 28 F.	12.77	20.8
Dec. 4 S.	12.92	18.2
Mean . . .	2 49 12.813	72 29 19.60
Div., Flex., etc.	. .	— 0.07

47 Arietis.

1872.	h. m. s.	° ′ ″
Nov. 28 F.	2 50 45.73	69 50 46.4
Dec. 2 F.	45.88	48.0
4 E.	45.81	46.6
Mean . . .	2 50 45.807	69 50 47.00
Div., Flex., etc.	. .	— 0.05

ϵ^1 Arietis.

1872.	h. m. s.	° ′ ″
Nov. 28 F.	2 51 53.77	69 10 23.3
Dec. 2 F.	53.85	23.3
4 S.	53.84	21.7
Mean . . .	2 51 53.820	69 10 22.77
Div., Flex , etc.	. .	— 0.02

53 Arietis.

1872.	h. m. s.	° ′ ″
Oct. 16 S.	3 0 13.52	72 36 55.9
Nov. 28 F.	13.43	56.9
Dec. 4 S.	13.54	55.4
Mean . . .	3 0 13.497	72 36 56.07
Div., Flex., etc.	. .	— 0.06

δ Arietis.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	3 4 18.79	70 45 32.9
Dec. 2 F.	18.88	34.7
4 E.	18.79	34.1
Mean . . .	3 4 18.820	70 45 33.90
Div., Flex., etc.	. .	— 0.09

B. A. C. 987.

1872.	h. m. s.	° ′ ″
Nov. 28 F.	3 4 20.26	77 26 20.9
Dec. 4 S.	20.34	18.9
9 E.	20.30	19.9
Mean . . .	3 4 20.300	77 26 19.90
Div., Flex., etc.	. .	— 0.13

τ^1 Arietis.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	3 13 50.41	69 18 57.8
22 S.	50.46	59.2
Oct. 16 S.	50.48	57.4
Nov. 28 F.	50.41	58.3
Mean . . .	3 13 50.440	69 18 58.18
Div., Flex., etc.	. .	— 0.03

τ^2 Arietis.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	3 15 23.41	69 43 4.1
Nov. 28 F.	23.40	5.2
Mean . . .	3 15 23.405	69 43 4.65
Div., Flex., etc.	. .	— 0.05

65 Arietis.

1872	h. m. s.	° ′ ″
Nov. 26 S.	3 17 3.42	69 39 8.5
28 F.	3.46	9.2
Dec. 4 S.	3.52	7.3
Mean . . .	3 17 3.467	69 39 8.33
Div., Flex., etc.	. .	— 0.04

f Tauri.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	3 23 48.54	77 30 14.3
22 S.	48.58	14.5
Oct. 16 S.	48.53	13.5
Mean . . .	3 23 48.550	77 30 14.10
Div., Flex., etc.	. .	— 0.13

9 Tauri.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	3 29 26.55	67 12 50.0
22 S.	26.72	49.7
Nov. 26 S.	26.65	50.7
Mean . . .	3 29 26.640	67 12 50.13
Div., Flex., etc.	. .	— 0.02

13 Tauri.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	3 34 56.20	70 42 41.7
22 S.	56.22	43.2
Nov. 26 S.	56.22	41.0
Mean . . .	3 34 56.213	70 42 41.97
Div., Flex., etc.	. .	— 0.09

g Pleiadum.

1872.	h. m. s.	° ′ ″
Nov. 28 F.	3 37 11.93	66 6 54.0
Dec. 5 E.	11.80	54.5
12 S.	11.91	54.8
Mean . . .	3 37 11.880	66 6 54.43
Div., Flex., etc.	. .	— 0.06

b Pleiadum.

1872.	h. m. s.	° ′ ″
Dec. 4 S.	3 37 16.66	66 17 26.8
10 F.	16.58	27.7
23 E.	16.61	27.9
Mean . . .	3 37 16.617	66 17 27.47
Div., Flex., etc.	. .	— 0.06

m Pleiadum.

1872.	h. m. s.	° ′ ″
Dec. 2 F.	3 37 31.75	65 34 51.4
13 E.	31.72	52.9
24 S.	31.77	52.4
Mean . . .	3 37 31.747	65 34 52.23
Div., Flex., etc.	. .	— 0.11

e Pleiadum.

1872.	h. m. s.	° ′ ″
Dec. 5 E.	3 37 35.42	65 56 10.7
22 F.	35.45	10.3
23 E.	35.46	11.3
Mean . . .	3 37 35.443	65 56 10.77
Div., Flex., etc.	. .	— 0.07

c Pleiadum.

1872.	h. m. s.	° ′ ″
Nov. 28 F.	3 38 12.76	66 2 2.9
Dec. 10 F.	12.69	1.7
13 E.	12.87	5.0
Mean . . .	3 38 12.773	66 2 3.20
Div., Flex., etc.	. .	— 0.07

d Pleiadum.

1872.	h. m. s.	° ′ ″
Dec. 2 F.	3 38 43.93	66 27 8.8
12 S.	43.91	9.1
22 F.	43.85	9.1
Mean . . .	3 38 43.897	66 27 9.00
Div., Flex., etc.	. .	— 0.05

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26 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	3 41 20.86	66 32 10.6
Div., Flex., etc.		. .	— 0.04

f Pleiadum.

1872.		h. m. s.	° ′ ″
Nov. 28	F.	3 41 33.19	66 20
Dec. 5	E.	33.22	23.5
6	F.	33.32	22.7
Mean . . .		3 41 33.243	66 20 23.10
Div., Flex., etc.		. .	— 0.05

h Pleiadum.

1872.		h. m. s.	° ′ ″
Jan. 22	S.	3 41 34.46	66 15 26.5
Dec. 4	S.	34.56	23.0
10	F.	34.39	23.8
Mean . . .		3 41 34.470	66 15 24.43
Div., Flex., etc.		. .	— 0.06

33 Tauri.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	3 49 28.62	67 11 53.1
22	S.	28.67	54.3
Nov. 16	F.	28.60	52.0
Mean . . .		3 49 28.630	67 11 53.13
Div., Flex., etc.		. .	— 0.02

A^1 Tauri.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	3 57 7.87	68 16 10.8
22	S.	7.88	. .
Oct. 16	S.	7.87	11.2
Nov. 16	E.	7.83	11.4
Mean . . .		3 57 7.862	68 16 11.13
Div., Flex., etc.		. .	— 0.01

B. A. C. 1272.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	4 0 39.74	73 0 15.6
22	S.	39.79	16.4
Feb. 15	S.	39.76	14.9
Mean . . .		4 0 39.763	73 0 15.63
Div., Flex., etc.		. .	— 0.05

48 Tauri.

1872.		h. m. s.	° ′ ″
Jan. 22	S.	4 8 30.47	74 55 17.8
Nov. 16	F.	30.36	17.7
26	S.	30.38	17.6
Mean . . .		4 8 30.403	74 55 17.70
Div., Flex., etc.		. .	— 0.06

ω^2 Tauri.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	4 9 45.72	69 44 19.4
Feb. 15	S.	45.79	18.2
Oct. 16	S.	45.55	19.8
Nov. 28	F.	45.73	19.0
Mean . . .		4 9 45.698	69 44 19.10
Div., Flex., etc.		. .	— 0.12

58 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	4 13 20.84	75 12 48.1
4	S.	20.98	49.1
5	E.	20.82	47.5
Mean . . .		4 13 20.880	75 12 48.23
Div., Flex., etc.		. .	— 0.07

δ^1 Tauri.

1872.		h. m. s.	° ′ ″
Jan. 22	S.	4 15 33.30	72 45 36.6
Nov. 26	S.	33.28	34.8
Dec. 2	F.	33.33	35.2
Mean . . .		4 15 33.303	72 45 35.53
Div., Flex., etc.		. .	— 0.06

63 Tauri.

1872.		h. m. s.	° ′ ″
Feb. 15	S.	4 16 4.53	73 31 25.6
Oct. 16	S.	4.52	25.3
Dec. 13	E.	4.61	26.6
Mean . . .		4 16 4.553	73 31 25.83
Div., Flex., etc.		. .	— 0.04

δ^2 Tauri.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	4 16 43.13	72 51 17.8
Dec. 5	E.	43.06	16.5
6	F.	43.19	17.1
Mean . . .		4 16 43.127	72 51 17.13
Div., Flex., etc.		. .	— 0.05

κ^1 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	4 17 44.60	68 0 4.0
10	F.	44.55	5.4
13	E.	44.60	4.4
Mean . . .		4 17 44.583	68 0 4.60
Div., Flex., etc.		. .	— 0.01

κ^2 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 5	E.	4 17 47.70	68 5 42.8
12	S.	47.71	42.1
23	E.	47.60	42.4
Mean . . .		4 17 47.670	68 5 42.43
Div., Flex., etc.		. .	— 0.01

δ^3 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 6	F.	4 18 5.14	72 22 0.0
22	F.	5.12	. .
23	E.	5.09	1.2
Mean . . .		4 18 5.117	72 22 0.60
Div., Flex., etc.		. .	— 0.07

v^1 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 5	E.	4 18 38.90	67 28 52.5
13	E.	39.10	46.6
24	S.	39.06	43.6
Mean . . .		4 18 39.020	67 28 47.57
Div., Flex., etc.		. .	— 0.02

71 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	4 19 3.27	74 40 29.0
22	F.	3.21	. .
23	E.	3.16	28.2
Mean . . .		4 19 3.213	74 40 28.60
Div., Flex., etc.		. .	— 0.05

v^2 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 4	S.	4 19 38.29	67 17 40.6
13	E.	38.25	42.2
24	S.	38.26	39.5
Mean . . .		4 19 38.267	67 17 40.77
Div., Flex., etc.		. .	— 0.02

75 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F	. . .	73 55 42.9
13	E.	4 21 7.45	44.2
23	E.	7.39	43.8
Mean . . .		4 21 7.420	73 55 43.63
Div., Flex., etc.		. .	— 0.04

θ^1 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 6	F.	4 21 15.98	74 19 26.6
22	F.	15.92	26.5
Mean . . .		4 21 15.950	74 19 26.55
Div., Flex., etc.		. .	— 0.05

θ^2 Tauri.

1872.		h. m. s.	° ′ ″
Nov. 26	S.	4 21 21.34	74 24 53.6
Dec. 4	S.	21.35	54.1
12	S.	21.40	54.7
Mean . . .		4 21 21.363	74 24 54.13
Div., Flex., etc.		. .	— 0.05

80 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	4 22 50.83	74 38 38.4
6	F.	50.87	37.1
13	E.	50.77	40.2
Mean . . .		4 22 50.823	74 38 38.57
Div., Flex., etc.		. .	— 0.05

B. A. C. 1391.

1872.		h. m. s.	° ′ ″
Nov. 16	F.	. . .	74 5 11.7
Dec. 5	E.	4 23 14.09	13.4
10	F.	14.05	11.2
23	E.	14.16	11.5
Mean . . .		4 23 14.100	74 5 11.95
Div., Flex., etc.		. .	— 0.04

81 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	4 23 20.86	74 35 18.5
6	F.	21.06	17.8
13	E.	20.85	19.3
Mean . . .		4 23 20.923	74 35 18.53
Div., Flex., etc.		. .	— 0.05

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B. A. C. 1394.

1872.		h. m. s.	° ′ ″
Nov. 16	F.	. . .	74 7 52.2
Dec. 5	E.	4 23 27.30	52.0
10	F.	27.41	51.4
23	E.	27.44	52.4
Mean . . .		4 23 27.383	74 7 52.00
Div., Flex., etc.		. .	— 0.04

85 Tauri.

1872.		h. m. s.	° ′ ″
Nov. 26	S.	4 24 33.26	74 25 30.2
Dec. 4	S.	33.18	30.1
12	S.	33.21	30.9
Mean . . .		4 24 33.217	74 25 30.40
Div., Flex., etc.		. .	— 0.05

D. M. 889.

1872.		h. m. s.	° ′ ″
Jan. 5	F.	4 32 46.26	56 29 28.7
17	F.	46.27	30.1
Mean . . .		4 32 46.265	56 29 29.40
Div., Flex., etc.		. .	— 0.32

τ Tauri.

1872.		h. m. s.	° ′ ″
Jan. 22	S.	4 34 33.93	67 17 27.6
Dec. 2	F.	33.86	26.6
4	S.	33.86	26.1
Mean . . .		4 34 33.883	67 17 26.77
Div., Flex., etc.		. .	— 0.02

i Tauri.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	4 43 53.22	71 22 48.5
22	S.	53.35	. .
Feb. 15	S.	53.32	47.0
16	Ha.	53.15	49.1
Dec. 2	F.	53.23	48.1
Mean . . .		4 43 53.254	71 22 48.18
Div., Flex., etc.		. .	— 0.09

99 Tauri.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	4 50 2.82	66 15 15.3
22	S.	2.87	13.5
Dec. 5	E.	2.74	15.3
Mean . . .		4 50 2.810	66 15 14.70
Div., Flex., etc.		. .	— 0.06

k Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	4 50 19.52	65 8 58.0
4	S.	19.54	59.5
6	F.	19.50	57.6
Mean . . .		4 50 19.520	65 8 58.37
Div., Flex., etc.		. .	— 0.15

ι Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	4 55 26.80	68 35 43.5
4	S.	26.74	42.7
5	E.	26.68	42.2
Mean . . .		4 55 26.740	68 35 42.80
Div., Flex., etc.		. .	— 0.01

m Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	4 59 53.21	71 31 44.1
5	E.	53.15	45.0
6	F.	53.16	44.5
Mean . . .		4 59 53.173	71 31 44.53
Div., Flex., etc.		. .	— 0.09

l Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	5 0 13.96	69 45 10.4
10	F.	13.92	10.6
23	E.	14.13	4.7
Mean . . .		5 0 14.003	69 45 8.57
Div., Flex., etc.		. .	— 0.05

105 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 5	E.	5 0 16.30	68 28 0.1
13	E.	16.38	2.3
22	F.	16.29	1.4
Mean . . .		5 0 16.323	68 28 1.27
Div., Flex., etc.		. .	— 0.01

n Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	5 11 35.16	. . .
5	E.	35.15	68 2 18.4
6	S.	35.21	16.6
Mean . . .		5 11 35.173	68 2 17.50
Div., Flex., etc.		. .	— 0.01

111 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 5	E.	5 16 57.29	72 44 15.4
6	F.	57.32	15.1
10	F.	57.27	16.6
13	E.	57.40	18.0
Mean . . .		5 16 57.320	72 44 16.28
Div., Flex., etc.		. .	— 0.06

115 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 5	E.	5 19 42.06	72 8 59.3
6	F.	42.20	59.0
24	S.	42.21	0.9
Mean . . .		5 19 42.157	72 8 59.73
Div., Flex., etc.		. .	— 0.08

o Tauri.

1872.		h. m. s.	° ′ ″
Dec. 10	F.	5 19 56.94	68 10 28.8
13	E.	56.88	30.5
22	F.	56.90	26.8
Mean . . .		5 19 56.907	68 10 28.70
Div., Flex., etc.		. .	— 0.01

117 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 5	E.	5 20 35.77	72 52 10.6
12	S.	35.78	13.7
13	E.	35.83	12.1
Mean . . .		5 20 35.793	72 52 12.13
Div., Flex., etc.		. .	— 0.05

119 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	5 24 42.53	71 30 11.5
5	E.	42.32	11.6
6	F.	42.54	10.8
Mean . . .		5 24 42.463	71 30 11.30
Div., Flex., etc.		. .	— 0.09

120 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	5 26 1.57	71 33 12.0
5	E.	1.51	11.8
6	F.	1.62	11.7
Mean . . .		5 26 1.567	71 33 11.83
Div., Flex., etc.		. .	— 0.09

121 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	5 27 38.13	66 2 55.1
6	F.	38.09	51.6
10	F.	38.04	52.2
Mean . . .		5 27 38.087	66 2 52.97
Div., Flex., etc.		. .	— 0.07

ζ Tauri.

1872.		h. m. s.	° ′ ″
Feb. 7	S.	5 29 59.74	68 56 16.6
Mar. 18	S.	59.69	18.6
Dec. 13	E.	59.79	17.6
Mean . . .		5 29 59.740	68 56 17.60
Div., Flex., etc.		. .	— 0.01

125 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 6	F.	5 31 48.21	64 10 37.1
10	F.	48.18	38.0
13	E.	48.31	39.8
Mean . . .		5 31 48.233	64 10 38.30
Div., Flex., etc.		. .	— 0.23

130 Tauri.

1872.		h. m. s.	° ′ ″
Feb. 7	S.	5 39 58.43	72 19 16.2
Dec. 2	F.	58.42	15.4
10	F.	58.42	16.5
Mean . . .		5 39 58.423	72 19 16.03
Div., Flex., etc.		. .	— 0.07

132 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	5 41 9.67	65 28 40.6
6	F.	9.63	40.8
10	F.	9.63	40.3
Mean . . .		5 41 9.643	65 28 40.57
Div., Flex., etc.		. .	— 0.12

136 Tauri.

1872.		h. m. s.	° ′ ″
Feb. 5	E.	5 45 16.89	62 25 14.0
7	S.	17.07	14.5
Mar. 18	S.	16.93	15.9
Mean . . .		5 45 16.963	62 25 14.80
Div., Flex., etc.		. .	— 0.30

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χ^2 Orionis.

1872.		h. m. s.	° ′ ″
Feb. 27	S.	5 47 22.10	70 16 38.1
Dec. 2	F.	22.01	38.7
6	F.	22.05	39.8
Mean . . .		5 47 22.053	70 16 38.87
Div., Flex., etc.		. .	— 0.07

139 Tauri.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	5 50 3.06	64 3 51.1
10	F.	3.09	51.7
13	E.	3.19	52.6
Mean . . .		5 50 3.113	64 3 51.80
Div., Flex., etc.		. .	— 0.24

141 Tauri.

1872.		h. m. s.	° ′ ″
Feb. 5	E.	5 53 57.82	67 36 18.2
Mar. 18	S.	57.89	20.8
Dec. 2	F.	57.84	17.3
6	F.	57.91	. .
10	F.	57.85	18.3
Mean . . .		5 53 57.862	67 36 18.65
Div., Flex., etc.		. .	— 0.01

χ^3 Orionis.

1872.		h. m. s.	° ′ ″
Feb. 19	S.	5 55 53.86	70 18 35.2
Div., Flex., etc.		. .	— 0.07

χ^4 Orionis.

1872.		h. m. s.	° ′ ″
Dec. 10	F.	5 56 19.11	69 51 39.7
Div., Flex., etc.		. .	— 0.05

1 Geminorum.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	5 56 20.38	66 43 55.2
6	F.	20.39	55.1
22	F.	20.35	53.6
Mean . . .		5 56 20.373	66 43 54.63
Div., Flex., etc.		. .	— 0.03

3 Geminorum.

1872.		h. m. s.	° ′ ″
Feb. 7	S.	6 1 57.42	66 52 5.3
March 18	S.	57.59	6.7
Mean . . .		6 1 57.505	66 52 6.00
Div., Flex., etc.		. .	— 0.03

68 Orionis.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	6 4 26.43	70 10
24	S.	26.41	59.5
Mean . . .		6 4 26.42	59.5
Div., Flex., etc.		. .	— 0.07

6 Geminorum.

1872.		h. m. s.	° ′ ″
Dec. 10	F.	6 4 33.57	67 3 54.6
22	F	33.52	52.3
23	E.	33.48	53.1
Mean . . .		6 4 33.523	67 3 53.33
Div., Flex., etc.		. .	— 0.02

η Geminorum.

1872.		h. m. s.	° ′ ″
Dec. 2	F.	6 7 9.06	67 27 30.1
24	S.	8.88	30.1
Mean . . .		6 7 8.970	67 27 30.10
Div., Flex., etc.		. .	— 0.02

71 Orionis.

1872.		h m. s.	° ′ ″
Feb. 27	S.	6 7 19.03	70 48 8.3
Dec. 22	F.	19.02	8.3
23	E.	18.84	8.1
Mean . . .		6 7 18.963	70 48 8.23
Div., Flex., etc.		. .	— 0.09

ν Geminorum.

1872.		h. m. s.	° ′ ″
Feb. 27	S.	6 21 21.87	69 42 31.8
March 12	E.	21.76	33.2
16	E.	21.75	33.3
Mean . . .		6 21 21.793	69 42 32.77
Div., Flex., etc.		. .	— 0.04

26 Geminorum.

1872.		h. m. s.	° ′ ″
March 6	S.	6 34 57.18	72 13 54.7
16	E.	. .	53.8
20	F.	56.93	56.6
Mean . . .		6 34 57.055	72 13 55.03
Div., Flex., etc.		. .	— 0.07

ε Geminorum.

1872.		h. m. s.	° ′ ″
Feb. 20	Ha.	6 36 3.30	64 44 41.7
March 16	E.	. .	40.4
18	S.	3.37	42.5
Dec. 2	F.	3.36	39.5
Mean . . .		6 36 3.343	74 44 41.02
Div., Flex., etc.		. .	— 0.18

ω Geminorum.

1872.		h. m. s.	° ′ ″
Feb. 19	S.	6 54 36.68	65 36 16.5
21	E.	36.81	16.8
22	F.	36.63	17.3
March 12	E.	36.67	16.5
Mean . . .		6 54 36.698	65 36 16.78
Div., Flex., etc.		. .	— 0.11

ζ Geminorum.

1872.		h. m. s.	° ′ ″
Feb. 22	F.	6 56 30.91	69 14 40.7
23	S.	30.96	39.0
March 6	S.	31.10	38.5
12	E.	30.93	39.0
Mean . . .		6 56 30.975	69 14 39.30
Div., Flex., etc.		. .	— 0.02

47 Geminorum.

1872.		h. m. s.	° ′ ″
Feb. 19	S.	7 3 26.70	62 56 9.6
21	E.	26.78	9.3
23	S.	26.71	7.8
Mean . . .		7 3 26.730	62 56 8.90
Div., Flex., etc.		. .	— 0.30

48 Geminorum.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	7 4 39.60	65 39 35.3
Feb. 22	F.	39.62	34.8
March 6	S.	39.84	35.3
Mean . . .		7 4 39.687	65 39 35.13
Div., Flex., etc.		. .	— 0.10

52 Geminorum.

1872.		h. m. s.	° ′ ″
Jan. 17		7 6 52.24	64 53 42.5
March 12	E.	52.12	42.2
Mean . . .		7 6 52.180	64 53 42.35
Div., Flex. etc.		. .	— 0.17

λ Geminorum.

1872.		h. m. s.	° ′ ″
Feb. 21	E.	7 10 44.15	73 13 52.3
March 5	F.	44.14	50.8
12	E.	44.19	50.7
Mean . . .		7 10 44.160	73 13 51.27
Div., Flex., etc.		. .	— 0.05

56 Geminorum.

1872.		h. m. s.	° ′ ″
Feb. 27	S.	7 14 23.55	69 19 0.3
March 16	E.	23.60	1.4
21	E.	23.62	1.9
Mean . . .		7 14 23.590	69 19 1.20
Div., Flex., etc.		. .	— 0.02

Anonymous.

1872.		h. m. s.	° ′ ″
Feb. 14	F.	7 18 46.23	43 13 21.5
22	F.	46.10	21.6
March 28	E.	46.27	22.2
Mean . . .		7 18 46.200	43 13 21.77
Div., Flex., etc.		. .	— 0.19

63 Geminorum.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	7 20 8.42	68 17 43.8
Feb. 23	S.	8.44	43.7
March 5	F.	8.35	41.9
Mean . . .		7 20 8.403	68 17 43.13
Div., Flex., etc.		. .	— 0.01

Anonymous.

1872.		h. m. s.	° ′ ″
Jan. 17	F.	7 25 56.60	42 57 25.4
25	F.	56.61	26.2
March 29	F.	56.74	24.6
Mean . . .		7 25 56.650	42 57 25.40
Div., Flex., etc.		. .	— 0.19

68 Geminorum.

1872.		h. m. s.	° ′ ″
March 20	F.	7 26 17.92	73 53 59.6
21	E.	18.17	58.2
27	Ha.	18.09	0.9
Mean . . .		7 26 18.060	73 53 59.57
Div., Flex., etc.		. .	— 0.04

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ANONYMOUS.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	7 31 38.17	43 1 55.1
24 F.	38.05	55.0
March 28 E.	38.38	57.0
Mean . . .	7 31 38.200	43 1 55.70
Div., Flex., etc.	. .	— 0.19

f GEMINORUM.

1872.	h. m. s.	° ′ ″
March 20 F.	7 32 4.84	72 2 9.2
21 E.	4.97	9.8
24 E.	4.93	11.0
Mean . . .	7 32 4.913	72 2 10.00
Div., Flex., etc.	. .	— 0.08

c GEMINORUM.

1872.	h. m. s.	° ′ ″
March 20 F.	7 36 18.24	63 54 47.5
21 E.	18.36	50.5
27 Ha.	18.33	47.5
Mean . . .	7 36 18.310	63 54 48.50
Div., Flex., etc.	. .	— 0.25

κ GEMINORUM.

1872.	h. m. s.	° ′ ″
March 18 S.	7 36 43.08	65 20 50.9
24 E.	42.92	50.4
28 E.	43.09	50.3
Mean . . .	7 38 43.030	65 20 50.53
Div., Flex., etc.	. .	— 0.13

g GEMINORUM.

1872.	h. m. s.	° ′ ″
March 21 E.	7 38 42.63	71 10 46.1
24 E.	42.59	49.2
27 Ha.	42.66	46.5
Mean . . .	7 38 42.627	71 10 47.27
Div., Flex., etc.	. .	— 0.10

ω^1 CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 19 S.	7 53 11.11	64 15 31.3
March 21 E.	10.97	32.8
27 Ha.	11.17	31.9
Mean . . .	7 53 11.083	64 15 32.00
Div., Flex., etc.	. .	— 0.22

5 CANCRI.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	7 54 12.48	73 11 36.9
March 21 E.	12.42	37.5
28 E.	12.44	38.2
Mean . . .	7 54 12.447	73 11 37.53
Div., Flex., etc.	. .	— 0.05

μ^2 CANCRI.

1872.	h. m. s.	° ′ ″
Jan. 17 F.	8 0 13.72	68 2 54.4
March 24 E.	13.72	54.0
28 E.	13.81	56.2
Mean . . .	8 0 13.750	68 2 54.87
Div., Flex., etc.	. .	— 0.01

ζ^1 CANCRI.

1872.	h. m. s.	° ′ ″
March 19 Ha.	8 4 52.14	71 58 5.8
24 E.	52.12	. .
27 Ha.	52.12	5.4
Mean . . .	8 4 52.127	71 58 5.60
Div., Flex., etc.	. .	— 0.08

ζ^2 CANCRI.

1872.	h. m. s.	° ′ ″
March 19 Ha.	8 4 52.44	71 58 9.9
24 E.	52.33	. .
27 Ha.	52.40	9.3
Mean . . .	8 4 52.390	71 58 9.60
Div., Flex., etc.	. .	— 0.08

χ CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 22 F.	8 12 17.10	62 22 11.9
March 24 E.	16.99	12.1
27 Ha.	17.16	11.4
Mean . . .	8 12 17.083	62 22 11.80
Div., Flex., etc.	. .	— 0.30

λ CANCRI.

1872.	h. m. s.	° ′ ″
March 21 E.	8 12 55.33	65 34 34.7
28 E.	55.42	35.3
Mean . . .	8 12 55.375	65 34 35.00
Div., Flex., etc.	. .	— 0.11

d^1 CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 19 S.	8 16 2.00	71 15 30.6
March 21 E.	1.87	29.4
27 Ha.	1.97	31.0
Mean . . .	8 16 1.947	71 15 30.33
Div., Flex., etc.	. .	— 0.10

d^2 CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 22 F.	8 18 34.97	72 32 2.2
March 24 E.	34.90	1.3
28 E.	35.09	3.5
Mean . . .	8 18 34.987	72 32 2.33
Div., Flex., etc.	. .	— 0.06

27 CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 23 F.	8 19 39.08	76 55 29.8
March 28 E.	39.08	29.5
Mean . . .	8 19 39.080	76 55 29.65
Div., Flex., etc.	. .	— 0.12

29 CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 26 F.	8 21 28.69	75 22 2.0
March 21 E.	28.64	1.8
27 Ha.	28.74	3.2
Mean . . .	8 21 28.690	75 22 2.33
Div., Flex., etc.	. .	— 0.07

θ CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 19 S.	8 24 17.73	71 28 29.1
21 E.	17.71	29.3
22 F.	17.61	29.0
March 12 E.	17.70	28.5
Mean . . .	8 24 17.688	71 28 28.97
Div., Flex., etc.	. .	— 0.09

γ CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 22 F.	8 35 52.42	68 4 21.7
March 12 E.	52.58	22.6
19 Ha.	52.55	22.8
27 Ha.	52.55	21.0
Mean . . .	8 35 52.525	68 4 22.03
Div., Flex., etc.	. .	— 0.01

A^1 CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 21 E.	8 36 9.00	76 51 43.4
March 24 E.	8.87	. .
28 E.	9.05	43.8
Mean . . .	8 36 8.973	76 51 43.60
Div., Flex., efc.	. .	— 0.12

δ CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 26 F.	8 37 24.55	71 22 37.9
March 24 E.	24.61	36.5
29 F.	24.58	36.0
Mean . . .	8 37 24.580	71 22 36.80
Div., Flex., etc.	. .	— 0.09

A^2 CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 19 S.	8 39 54.96	77 25 17.7
March 24 E.	54.89	19.3
27 Ha.	54.91	17.9
Mean . . .	8 39 54.920	77 25 18.30
Div., Flex., etc.	. .	— 0.13

60 CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 19 S.	8 48 56.12	77 53 10.9
21 E.	56.07	12.7
March 6 S.	56.17	10.9
27 Ha	56.13	10.4
Mean . . .	8 48 56.122	77 53 11.22
Div., Flex., etc.	. .	— 0.14

o^1 CANCRI.

1872.	h. m. s.	° ′ ″
Feb. 26 F.	8 50 6.54	74 11 17.1
March 19 Ha.	6.46	17.2
29 F.	6.51	16.0
Mean . . .	8 50 6.503	74 11 16.77
Div., Flex., etc.	. .	— 0.04

o^2 CANCRI.

1872.	h. m. s.	° ′ ″
March 18 S.	8 50 26.11	73 55 44.3
24 E.	26.07	43.2
April 1 F.	26.14	45.4
Mean . . .	8 50 26.107	73 55 44.30
Div., Flex., etc.	. .	— 0.04

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α Cancri.

1872.		h. m. s.	° ′ ″
Feb. 23	S.	8 51 29.09	77 38 54.1
March 6	S.	29.16	53.7
27	Ha.	29.12	52.4
Mean . . .		8 51 29.123	77 38 53.40
Div., Flex., etc.		. .	— 0.13

83 Cancri.

1872.		h. m. s.	° ′ ″
Feb. 23	S.	9 11 50.07	71 45 13.6
26	F.	50.04	13.1
March 6	S.	50.22	11.9
12	E.	50.17	12.3
18	S.	50.08	12.6
21	E.	50.09	14.7
Mean . . .		9 11 50.112	71 45 13.03
Div., Flex., etc.		. .	— 0.08

ω Leonis.

1872.		h. m. s.	° ′ ″
Feb. 23	S.	9 21 36.14	80 23 14.4
March 18	S.	36.10	15.3
29	F.	36.14	13.2
Mean . . .		9 21 36.127	80 23 14.30
Div., Flex., etc.		. ,	— 0.23

ζ Leonis.

1872.		h. m. s.	° ′ ″
March 19	Ha.	9 25 2.72	78 8 4.5
24	E.	2.67	3.9
29	F.	2.76	4.0
Mean . . .		9 25 2.717	78 8 4.13
Div., Flex., etc.		. .	— 0.14

h Leonis.

1872.		h. m. s.	° ′ ″
March 12	E.	9 25 5.76	79 43 15.7
April 1	F.	5.78	17.2
2	E.	5.85	15.7
Mean . . .		9 25 5.797	79 43 16.20
Div., Flex., etc.		. .	— 0.19

o Leonis.

1872.		h. m. s.	° ′ ″
Feb. 23	S.	9 34 19.08	79 31 37.0
March 5	F.	19.03	35.7
6	S.	19.10	35.9
Mean . . .		9 34 19.070	79 31 36.20
Div., Flex., etc.		. .	— 0.18

18 Leonis.

1872.		h. m. s.	° ′ ″
Feb. 23	S.	9 39 29.47	77 36 7.4
March 29	F.	29.61	4.0
April 1	F.	29.41	6.6
Mean . . .		9 39 29.497	77 36 6.00
Div., Flex., etc.		. .	— 0.13

B. A. C. 3345.

1872.		h. m. s.	° ′ ″
April 1	F.	9 40 40.27	77 58 44.6
2	E.	40.40	41.8
5	E.	40.39	43.2
13	E.	40.38	41.6
Mean . . .		9 40 40.360	77 58 42.80
Div., Flex., etc.		. .	— 0.14

ν Leonis.

1872.		h. m. s.	° ′ ″
April 1	F.	9 51 20.11	76 56 45.6
2	E.	20.16	43.1
13	E.	20.13	44.3
Mean . . .		9 51 20.133	76 56 44.33
Div., Flex., etc.		. .	— 0.12

π Leonis.

1872.		h. m. s.	° ′ ″
Feb. 23	S.	9 53 26.89	81 20 35.1
March 21	E.	26.94	33.4
29	F.	26.99	31.6
Mean . . .		9 53 26.940	81 20 33.37
Div., Flex., etc.		. .	— 0.28

η Leonis.

1872,		h. m. s.	° ′ ″
Feb. 26	F.	10 0 21.12	72 36 50.7
March 29	F.	21.11	49.0
Mean . . .		10 0 21.115	72 36 49.85
Div., Flex., etc.		. .	— 0.06

16 Sextantis.

1872.		h. m. s.	° ′ ″
April 1	F.	10 2 32.46	83 12 11.5
5	E.	32.38	9.2
16	S.	32.42	9.6
17	F.	32.42	10.3
Mean . . .		10 2 32.420	83 12 10.15
Div., Flex., etc.		. .	— 0.32

ζ Leonis.

1872.		h. m. s.	° ′ ″
Oct. 20	S.	10 9 34.29	65 56 44.9
21	S.	34.25	. .
Nov. 18	S.	34.04	44.4
Mean . . .		10 9 34.193	65 56 44.65
Div., Flex., etc.		. .	— 0.08

Weisse 138.

1872.		h. m. s.	° ′ ″
March 29	F.	10 9 48.45	75 38 2.4
April 1	F.	48.27	4.6
5	E.	48.35	2.1
13	E.	48.35	2.6
Mean . . .		10 9 48.355	75 38 2.92
Div., Flex., etc.		. .	— 0.09

Groombridge 1620.

1872.		h. m. s.	° ′ ″
April 19	Ha.	10 10 40.51	5 6 1.8
24	S.	39.84	1.5
Mean . . .		10 10 40.175	5 6 1.65
Div., Flex., etc.		. .	— 0.44

Weisse 187.

1872.		h. m. s.	° ′ ″
April 5	E.	10 12 28.99	77 22 31.8
10	F.	29.02	34.3
13	E.	29.12	32.0
Mean . . .		10 12 29.043	77 22 32.70
Div., Flex., etc.		. .	— 0.13

42 Leonis.

1872.		h. m. s.	° ′ ″
April 1	F.	10 14 57.20	74 22 48.5
13	E.	57.20	48.3
17	E.	57.07	47.1
Mean . . .		10 14 57.157	74 22 47.97
Div., Flex., etc.		. .	— 0.05

Weisse 339.

1872.		h. m. s.	° ′ ″
April 1	F.	10 20 43.56	82 7 56.8
10	F.	43.54	56.7
13	E.	43.57	55.1
Mean . . .		10 20 43.556	82 7 56.20
Div., Flex., etc.		. .	— 0.30

45 Leonis.

1872.		h. m. s.	° ′ ″
Jan. 26	S.	10 20 53.40	79 35 9.4
April 17	E.	53.08	9.2
23	Ha.	53.24	10.2
Mean . . .		10 20 53.240	79 35 9.60
Div., Flex., etc.		. .	— 0.18

B. A. C. 3579.

1872.		h. m. s.	° ′ ″
April 5	E.	10 21 57.81	75 0 11.0
13	E.	57.94	10.8
17	E.	57.84	10.9
Mean . . .		10 21 57.863	75 0 10.90
Div., Flex., etc.		. .	— 0.06

i Leonis.

1872.		h. m. s.	° ′ ″
April 5	E.	10 25 21.46	75 12 22.5
13	E.	21.66	23.0
17	E.	21.59	23.6
Mean . . .		10 25 21.570	75 12 23.03
Div., Flex., etc.		. .	— 0.07

49 Leonis.

1872.		h. m. s.	° ′ ″
Jan. 26	S.	10 28 19.28	80 41 19.8
Feb. 23	S.	19.23	20.9
April 19	Ha.	19.14	20.1
Mean . . .		10 28 19.217	80 41 20.27
Div., Flex., etc.		. .	— 0.25

Weisse 513.

1872.		h. m. s.	° ′ ″
April 5	E.	10 29 51.39	91 6 44.1
10	F.	51.35	47.1
13	E.	51.60	44.1
Mean . . .		10 29 51.447	91 6 45.10
Div., Flex., etc.		. .	— 0.48

Weisse 543.

1872.		h. m. s.	° ′ ″
April 11	S.	10 31 12.39	93 13 28.6
22	F.	12.31	29.5
25	E.	12.39	30.8
Mean . . .		10 31 12.363	93 13 29.63
Div., Flex., etc.		. .	— c.61

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WEISSE 551.

1872.		h. m. s.	° ′ ″
April 13	E.	10 31 39.44	91 18 32.6
23	Ha.	39.32	35.8
29	E.	39.39	36.7
Mean . . .		10 31 39.383	91 18 35.03
Div., Flex., etc.		. .	— 0.49

ANONYMOUS.

1872.		h. m. s.	° ′ ″
Jan. 5	F.	10 31 44.53	91 9 34.5
April 22	F.	44.37	35.9
Mean . . .		10 31 44.450	91 9 35.20
Div., Flex., etc.		. .	— 0.48

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 5	E.	10 31 59.08	91 3 33.0
Div., Flex., etc.		. .	— 0.47

WEISSE 568.

1872.		h. m. s.	° ′ ″
April 1	F.	10 32 41.70	95 13 0.9
23	Ha.	41.70	1.5
29	E.	41.71	0.8
30	F.	41.72	1.0
Mean . . .		10 32 41.708	95 13 1.05
Div., Flex., etc.		. .	— 0.54

37 SEXTANTIS.

1872.		h. m. s.	° ′ ″
Jan. 26	S.	10 39 25.83	82 57 10.0
April 5	E.	25.69	10.3
13	E.	25.84	9.9
Mean . . .		10 39 25.787	82 57 10.07
Div., Flex., etc.		. .	— 0.32

WEISSE 693.

1872.		h. m. s.	° ′ ″
April 1	F.	10 40 4.69	102 47 13.0
10	F.	4.80	15.2
11	S.	4.88	16.3
Mean . . .		10 40 4.790	102 47 14.83
Div., Flex., etc.		. .	— 0.30

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 1	F.	10 46 23.43	100 44 46.4
10	F.	23.42	48.1
19	Ha.	23.58	45.8
Mean . . .		10 46 23.477	100 44 46.77
Div., Flex., etc.		. .	— 0.35

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 5	E.	10 46 40.43	106 36 1.1
11	S.	40.56	0.2
13	E.	40.56	0.9
Mean . . .		10 46 40.517	106 36 0.73
Div., Flex., etc.		. .	— 0.24

X, 17.

1872.		h. m. s.	° ′ ″
May 4	F.	10 48 1.74	125 46 37.5
Div., Flex., etc.		. .	+ 0.11

55 LEONIS.

1872.		h. m. s.	° ′ ″
Jan. 26	S.	10 49 7.28	88 34 51.9
April 5	E.	. .	52.1
10	F.	7.15	54.0
13	E.	7.17	51.4
Mean . . .		10 49 7.200	88 34 52.35
Div., Flex., etc.		. .	— 0.37

d LEONIS.

1872.		h. m. s.	° ′ ″
April 1	F.	10 53 56.87	85 41 46.5
5	E.	56.91	45.1
10	F.	56.95	46.9
13	E.	57.09	44.7
Mean . . .		10 53 56.955	85 41 45.80
Div., Flex., etc.		. .	— 0.40

p^2 LEONIS.

1872.		h. m. s.	° ′ ″
April 1	F.	10 57 3.45	89 18 44.3
10	F.	3.45	45.1
Mean . . .		10 57 3.45	89 18 44.7
Div., Flex., etc.		. .	— 0.38

χ LEONIS.

1872.		h. m. s.	° ′ ″
April 1	F.	10 58 24.76	81 58 21.1
5	E.	24.85	20.2
10	F.	24.75	20.9
13	E.	24.88	19.7
Mean . . .		10 58 24.810	81 58 20.48
Div., Flex., etc.		. .	— 0.30

ANONYMOUS.

1872.		h. m. s.	° ′ ″
Jan. 5	F.	11 3 29.41	80 11 59.7
April 19	Ha.	29.30	12 1.6
Mean . . .		11 3 29.355	80 12 0.65
Div., Flex., etc.		. .	— 0.21

XI, 1.

1872.		h. m. s.	° ′ ″
May 4	F.	11 3 50.36	114 54 45.3
Div., Flex., etc.		. .	— 0.08

O. ARG. S. 11246.

1872.		h. m. s.	° ′ ″
April 4	F.	11 7 36.13	119 22 8.1
11	S.	36.40	6.6
17	Ha.	36.45	5.9
Mean . . .		11 7 36.327	119 22 6.87
Div., Flex., etc.		. .	— 0.07

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 1	F.	11 8 7.67	119 27 58.5
10	F.	7.96	28 0.3
13	E.	7.83	. .
Mean . . .		11 8 7.820	119 27 59.40
Div., Flex., etc.		. .	— 0.07

75 LEONIS.

1872.		h. m. s.	° ′ ″
Feb. 25	E.	11 10 42.13	87 17 9.9
April 19	Ha.	42.25	9.4
23	Ha.	42.17	10.6
Mean . . .		11 10 42.183	87 17 9.97
Div., Flex., etc.		. .	— 0.39

XI, 2.

1872.		h. m. s.	° ′ ″
May 4	F.	11 11 49.04	124 2 18.8
Div., Flex., etc.		. .	+ 0.03

ANONYMOUS.

1872.		h. m. s.	° ′ ″
Jan. 5	F.	11 12 9.77	124 30 56.5
Div., Flex., etc.		. .	+ 0.05

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 1	F.	11 12 46.72	124 30 8.0
5	E.	46.71	5.9
10	F.	46.60	9.0
13	E.	46.93	6.5
Mean . . .		11 12 46.740	124 30 7.35
Div., Flex., etc.		. .	+ 0.05

σ LEONIS.

1872.		h. m. s.	° ′ ″
Jan. 26	S.	11 14 32.08	83 16 10.4
Feb. 25	E.	32.13	9.3
April 22	F.	32.13	11.7
Mean . . .		11 14 32.113	83 16 10.47
Div., Flex., etc.		. .	— 0.33

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 15	F.	11 17 36.95	127 47 0.7
29	E.	36.99	46 51.5
May 13	F.	36.92	55.7
Mean . . .		11 17 36.953	127 46 55.97
Div., Flex., etc.		. .	+ 0.22

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 5	E.	11 18 22.92	126 16 42.0
13	E.	22.79	41.5
May 4	F.	22.99	42.9
7	E.	22.52	37.8
Mean . . .		11 18 22.805	126 16 41.05
Div., Flex., etc.		. .	+ 0.14

82 LEONIS.

1872.		h. m. s.	° ′ ″
April 11	S.	11 19 4.60	85 59 38.4
16	S.	4.71	37.9
23	Ha.	4.66	39.8
Mean . . .		11 19 4.657	85 59 38.70
Div., Flex , etc.		. .	— 0.41

ANONYMOUS.

1872.		h. m. s.	° ′ ″
Jan. 5	F.	11 19 38.84	126 12 2.3
April 1	F.	38.61	5.6
10	F.	38.54	5.7
22	F.	38.78	4.2
Mean . . .		11 19 38.692	126 12 4.45
Div., Flex., etc.		. .	+ 0.13

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ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 29	E.	11 23 28.29	127 45 6.9
May 13	F.	28.40	5.3
14	F.	28.33	10.2
Mean . . .		11 23 28.340	127 45 7.47
Div., Flex., etc.		. .	+ 0.22

e LEONIS.

1872.		h. m. s.	° ′ ″
April 13	E.	11 23 46.58	92 17 50.7
23	Ha.	46.51	52.4
24	S.	46.54	52.0
Mean . . .		11 23 46.543	92 17 51.70
Div., Flex., etc.		. .	— 0.57

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 29	E.	11 23 51.68	. .
May 13	F.	51.57	13 59 11.2
Mean . . .		11 23 51.625	13 59 11.20
Div., Flex., etc.		. .	+ 0.20

ANONYMOUS.

1872.		h. m. s.	° ′ ″
May 4	F.	11 25 25.54	134 1 59.6
Div., Flex., etc.		. .	+ 0.20

ANONYMOUS.

1872.		h. m. s.	° ′ ″
May 13	F.	11 25 27.70	129 28 30.6
16	S.	27.86	28.0
Mean . . .		11 25 27.780	129 28 29.30
Div., Flex., etc.		. .	+ 0.25

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 5	E.	11 28 16.59	. . .
13	E.	16.07	132 31 50.0
Mean . . .		11 28 16.330	132 31 50.00
Div., Flex., etc.		. .	+ 0.22

ANONYMOUS.

1872.		h. m. s.	° ′ ″
Jan. 5	F.	11 35 2.34	132 23 8.5
April 10	F.	2.19	14.2
11	S.	2.27	12.9
13	E.	2.54	8.7
Mean . . .		11 35 2.335	132 23 11.08
Div., Flex., etc.		. .	+ 0.22

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 30	E.	11 35 19.96	79 27 43.4
May 4	F.	20.25	43.3
14	F.	19.94	44.1
Mean . . .		11 35 20.050	79 27 43.60
Div., Flex., etc.		. .	— 0.17

XI, 10.

1872.		h. m. s.	° ′ ″
May 16	S.	11 37 5.01	126 28 59.2
Div., Flex., etc.		. .	+ 0.15

ν VIRGINIS.

1872.		h. m. s.	° ′ ″
Feb. 25	E.	11 39 16.85	82 45 12.7
April 5	E.	16.84	12.2
13	E.	16.81	15.2
19	Ha.	16.76	12.4
Mean . . .		11 39 16.815	82 45 13.12
Div., Flex., etc.		. .	— 0.32

β VIRGINIS.

1872.		h. m. s.	° ′ ″
April 5	E.	11 44 1.70	87 30 50.5
19	Ha.	1.71	50.1
22	F.	1.69	51.7
Mean . . .		11 44 1.700	87 30 50.77
Div., Flex., etc.		. .	— 0.38

B. A. C. 4006.

1872.		h. m. s.	° ′ ″
April 3	E.	11 44 29.83	94 37 18.7
19	Ha.	29.75	17.6
20	S.	29.57	18.3
23	Ha.	29.68	18.3
Mean . . .		11 44 29.708	94 37 18.22
Div., Flex., etc.		. .	— 0.58

XI, 16.

1872.		h. m. s.	° ′ ″
May 13	F.	11 50 33.96	122 36 9.8
Div., Flex., etc.		. .	0.00

XI, 17.

1872.		h. m. s.	° ′ ″
May 4	F.	11 55 40.53	119 53 37.1
13	F.	11 55 40.45	. .
Mean . . .		40.490	119 53 37.10
Div., Flex., etc		. .	— 0.07

XII, 1.

1872.		h. m. s.	° ′ ″
April 29	E.	12 5 16.20	117 21 16.6
30	F.	16.27	15.9
May 13	F.	16.31	14.6
Mean . . .		12 5 16.260	117 21 15.70
Div., Flex., etc.		. .	— 0.09

XII, 3.

1872.		h. m. s.	° ′ ″
April 29	E.	13 10 13.40	115 53 9.1
30	F.	13.48	7.8
May 16	S.	13.34	6.2
Mean . . .		12 10 13.407	115 53 7.70
Div., Flex., etc.		. .	— 0.10

ANONYMOUS.

1872.		h. m. s.	° ′ ″
Jan. 5	F.	12 14 25.17	91 42 51.3
April 5	E.	25.17	49.6
13	E.	25.35	52.1
Mean . . .		12 14 25.230	91 42 51.00
Div., Flex., etc.		. .	— 0.53

XII, 5.

1872.		h. m. s.	° ′ ″
April 29	E.	12 20 43.86	118 0 25.9
30	F.	43.85	26.1
May 8	F.	43.76	25.3
Mean . . .		12 20 43.823	118 0 25.77
Div., Flex., etc.		. .	— 0.08

XII, 6.

1872.		h. m. s.	° ′ ″
April 29	E.	12 23 35.61	112 59 18.0
May 13	F.	35.76	16,7
Mean . . .		12 23 35.685	112 59 17.35
Div., Flex., etc.		. .	— 0.07

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 10	F.	12 23 59.14	. .

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 10	F.	12 24 33.03	81 57 51.9
Div., Flex., etc.		. .	— 0.30

q VIRGINIS.

1872.		h. m. s.	° ′ ″
April 4	Ha.	12 27 10.44	98 44 46.3
11	S.	10.48	. .
13	E.	10.58	44.6
Mean . . .		12 27 10.500	98 44 45.45
Div., Flex., etc.		. .	— 0.45

ANONYMOUS.

1872.		h. m. s.	° ′ ″
April 5	E.	12 30 1.03	82 34 9.4
Div., Flex., etc.		. .	— 0.31

XII, 7.

1872.		h. m. s.	° ′ ″
April 29	E.	12 30 55.23	116 25 51.4
May 4	F.	55.39	52.1
16	S.	55.29	50.8
Mean . . .		12 30 55.303	116 25 51.43
Div., Flex., etc.		. .	— 0.10

XII, 8.

1872.		h, m. s.	° ′ ″
April 30	F.	12 33 21.72	. .
May 13	F.	21.91	127 9 9.4
23	S.	21.89	11.6
31	E.	21.87	9.0
Mean . . .		12 33 21.848	127 9 10.00
Div., Flex., etc.		. .	+ 0.19

γ^1 VIRGINIS.

1872.		h. m. s.	° ′ ″
Feb. 26	F.	12 35 10.39	90 44 47.6
April 4	Ha.	10.40	47.3
19	Ha.	10.59	46.2
Mean . . .		12 35 10.460	90 44 47.03
Div., Flex., etc.		. .	— 0.46

28 VIRGINIS.

1872.		h. m. s.	° ′ ″
Jan. 31	Ha.	12 35 20.24	96 47 42.3
April 13	E.	20.69	46.0
16	S.	20.80	46.2
20	S.	20.71	45.1
Mean . . .		12 35 20.610	96 47 44.90
Div., Flex., etc.		. .	— 0.47

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XII, 9.

1872.	h. m. s.	° ′ ″
April 29 E.	12 35 56.95	120 14 39.4
Div., Flex., etc.	. .	— 0.06

ANONYMOUS.

1872.	h. m. s.	° ′ ″
May 4 F.	12 36 21.52	114 15 4.5
Div., Flex., etc.	. .	— 0.07

XII, 10.

1872.	h. m. s.	° ′ ″
April 30 F.	12 36 26.19	. .
May 16 S.	26.24	114 17 17.2
Mean . . .	12 36 26.215	114 17 17.20
Div., Flex., etc.	. .	— 0.07

ANONYMOUS.

1872.	h. m. s.	° ′ ″
April 5 E.	12 38 38.30	96 53 46.0
Div., Flex., etc.	. .	— 0.46

XII, 12.

1872.	h. m. s.	° ′ ″
May 23 S.	12 39 51.81	122 36 49.1
31 E.	51.80	50.0
Mean . . .	12 39 51.805	122 36 49.55
Div., Flex., etc.	. .	0.00

XII, 13.

1872.	h. m. s.	° ′ ″
April 29 E.	12 43 19.56	115 8 32.1
May 2 Ha.	19.42	32.6
Mean . . .	12 43 19.490	115 8 32.35
Div., Flex., etc.	. .	— 0.08

XII, 14.

1872.	h. m. s.	° ′ ″
May 4 F.	12 43 45.02	123 18 4.3
June 4 E.	44.70	2.1
Mean . . .	12 43 44.860	123 18 3.20
Div., Flex., etc.	. .	+ 0.01

XII, 15.

1872.	h. m. s.	° ′ ″
May 8 F.	12 44 47.59	121 20 52.8
31 E.	47.54	50.8
Mean . . .	12 44 47.565	121 20 51.80
Div., Flex., etc.	. .	— 0.03

XII, 16.

1872.	h. m. s.	° ′ ″
April 29 E.	12 44 58.71	124 23 7.7
June 4 E.	58.65	8.1
Mean . . .	12 44 58.680	124 23 7.90
Div., Flex., etc.	. .	+ 0.05

38 VIRGINIS.

1872.	h. m. s.	° ′ ″
Feb. 26 F.	12 46 37.96	92 51 24.8
April 5 E.	37.93	25.5
11 S.	37.94	25.2
13 E.	38.13	25.7
Mean . . .	12 46 37.990	92 51 25.30
Div., Flex., etc.	. .	— 0.60

XII, 17.

1872.	h. m. s.	° ′ ″
April 29 E.	12 50 55.71	128 13 29.3
May 2 S.	55.34	33.3
21 Ha.	55.66	28.3
23 S.	55.68	28.6
Mean . . .	12 50 55.598	128 13 29.88
Div., Flex., etc.	. .	+ 0.23

48 VIRGINIS.

1872.	h. m. s.	° ′ ″
April 4 Ha.	12 57 18.72	92 58 25.6
13 E.	18.85	26.1
19 Ha.	18.81	25.2
Mean . . .	12 57 18.793	92 58 25.63
Div., Flex., etc.	. .	— 0.61

ANONYMOUS.

1872.	h. m. s.	° ′ ″
April 5 E.	12 59 30.03	96 41 42.4
Div., Flex., etc.	. .	— 0.47

B. A. C. 4394.

1872.	h. m. s.	° ′ ″
April 4 Ha.	13 1 52.06	98 17 53.0
10 F.	52.04	53.2
11 S.	52.14	52.6
Mean . . .	13 1 52.080	98 17 52.93
Div., Flex., etc.	. .	— 0.46

XIII, 1.

1872.	h. m. s.	° ′ ″
May 2 S.	13 1 56.02	122 49 1.20
Div., Flex., etc.	. .	0.00

ANONYMOUS.

1872.	h. m. s.	° ′ ″
May 2 S.	13 2 2.35	122 48 17.00
Div., Flex., etc.	. .	0.00

50 VIRGINIS.

1872.	h. m. s.	° ′ ″
April 19 Ha.	13 3 3.47	99 38 44.4
23 Ha.	3.38	45.7
30 F.	3.47	45.5
Mean . . .	13 3 3.440	99 38 45.20
Div., Flex., etc.	. .	— 0.41

XIII, 2.

1872.	h. m. s.	° ′ ″
June 10 Ha.	13 4 41.78	115 52 12.6
11 E.	41.90	12.8
Mean . . .	13 4 41.84	115 52 12.70
Div., Flex., etc.	. .	— 0.10

58 VIRGINIS.

1872.	h. m. s.	° ′ ″
April 4 Ha.	13 10 44.88	99 52 15.8
23 Ha.	44.81	16.3
24 S.	44.96	. .
May 8 F.	44.87	15.0
Mean . . .	13 10 44.880	99 52 15.70
Div., Flex., etc.	. .	— 0.40

ANONYMOUS.

1872.	h. m. s.	° ′ ″
April 13 E.	13 16 3.50	98 38 46.3
22 F.	3.49	48.4
Mean . . .	13 16 3.495	98 38 47.35
Div., Flex., etc.	. .	— 0.45

i VIRGINIS.

1872.	h. m. s.	° ′ ″
April 25 E.	13 19 57.56	102 2 28.3
May 10 S.	57.50	27.4
14 S.	57.57	28.0
Mean . . .	13 19 57.543	102 2 27.90
Div., Flex., etc.	. .	— 0.31

XIII, 10.

1872.	h. m. s.	° ′ ″
June 4 Ha.	13 21 27.73	. .
12 E.	27.88	116 44 6.7
Mean . . .	13 21 27.805	116 44 6.7
Div., Flex., etc.	. .	— 0.09

XIII, 11.

1872.	h. m. s.	° ′ ″
May 21 Ha.	13 23 0.55	126 14 11.1
Div., Flex., etc.	. .	+ 0.13

β^2 VIRGINIS.

1872.	h. m. s.	° ′ ″
April 25 E.	13 25 18.83	95 35 39.60
May 14 S.	18.71	. .
27 E.	18.75	. .
31 E.	18.71	39.6
Mean . . .	13 25 18.75	95 35 39.6
Div., Flex., etc.	. .	— 0.52

XIII, 12.

1872.	h. m. s.	° ′ ″
May 23 S.	13 25 28.48	118 1 55.8
June 4 E.	28.58	55.4
Mean . . .	13 25 28.530	118 1 55.60
Div., Flex., etc.	. .	— 0.08

75 VIRGINIS.

1872.	h. m. s.	° ′ ″
April 16 S.	13 26 1.58	104 42 13.2
May 6 S.	1.49	13.8
14 S.	1.34	14.8
Mean . . .	13 26 1.470	104 42 13.93
Div., Flex., etc.	. .	— 0.28

80 VIRGINIS.

1872.	h. m. s.	° ′ ″
April 4 Ha.	13 28 51.79	94 44 36.3
24 S.	51.98	36.0
May 16 S.	51.81	34.8
Mean . . .	13 28 51.860	94 44 35.70
Div., Flex., etc.	. .	— 0.57

XIII, 16.

1872.	h. m. s.	° ′ ″
June 12 E.	13 29 58.43	126 59 43.6
Div., Flex., etc.	. .	+ 0.18

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XIII, 17.

1872.		h. m. s.	° ′ ″
May 2	S.	13 31 11.27	119 11 11.5
June 6	Ha.	11.58	13.5
10	Ha.	11.34	11.9
Mean . . .		13 31 11.330	119 11 12.30
Div., Flex., etc.		. .	— 0.08

XIII, 18.

1872.		h. m. s.	° ′ ″
May 23	S.	13 31 12.49	113 2 21.9
Div., Flex., etc.		. .	— 0.07

XIII, 19.

1872.		h. m. s.	° ′ ″
June 4	E.	13 31 32.73	122 27 31.4
Div., Flex., etc.		. .	— 0.01

XIII, 20.

1872.		h. m. s.	° ′ ″
May 31	E.	13 32 10.47	129 5 46.0
June 12	E.	10.65	44.8
13	F.	10.46	46.0
Mean . . .		13 32 10.527	129 5 45.60
Div,, Flex., etc.		. .	+ 0.25

XIII, 22.

1872.		h. m. s.	° ′ ″
May 4	F.	13 34 26.12	122 56 56.2
14	S.	25.83	56.6
27	E.	25.73	55.5
Mean . . .		13 34 25.893	122 56 56.10
Div., Flex., etc,		. .	+ 0.01

m VIRGINIS.

1872.		h. m. s.	° ′ ″
April 4	Ha.	13 34 53.70	98 3 22.9
16	S.	53.86	21.5
22	F.	53.81	21.2
Mean . . .		13 34 53.790	98 3 21.87
Div., Flex., etc.		. .	— 0.46

XIII, 23.

1872.		h. m. s.	° ′ ″
May 4	F.	13 40 43.18	127 37 18.8
23	S.	43.04	18.9
31	E.	43.01	18.9
Mean . . .		13 40 43.077	127 37 18.87
Div., Flex., etc.		. .	— 0.21

XIII, 24.

1872.		h. m. s.	° ′ ″
May 14	S.	13 41 33.28	125 3 32.3
27	E.	33.30	32.0
30	S.	33.27	32.0
Mean . . .		13 41 33.283	125 3 32.10
Div., Flex., etc.		. .	+ 0.07

XIII, 25.

1872.		h. m. s.	° ′ ″
May 16	S.	13 48 34.16	119 56 55.8
21	Ha.	33.98	56.1
June 10	Ha.	. .	58.1
Mean . . .		13 48 34.070	119 57 56.67
Div., Flex., etc.		. .	— 0.06

XIII, 26.

1872.		h. m. s.	° ′ ″
May 23	S.	13 50 0.21	118 0 29.1
31	E.	0.17	29.3
June 4	E.	0.38	29.6
Mean . . .		13 50 0.253	118 0 29.33
Div., Flex., etc.		. .	— 0.08

XIII, 27.

1872.		h. m. s.	° ′ ″
May 31	E.	13 53 22.30	115 38 20.2
June 8	E.	22.32	21.8
10	Ha.	22.27	18.0
Mean . . .		13 53 22.297	115 38 20.00
Div., Flex., etc.		. .	— 0.09

XIII, 28.

1872.		h. m. s.	° ′ ″
May 21	Ha.	13 53 30.75	126 50 48.8
23	S.	30.81	48.6
June 4	E.	30.75	48.7
Mean . . .		13 53 30.770	126 50 48.70
Div., Flex., etc.		. .	+ 0.17

94 VIRGINIS.

1872.		h. m. s.	° ′ ″
April 4	Ha.	13 59 31.20	98 16 47.3
16	S.	31.35	46.3
May 6	S.	31.26	46.5
9	Ha.	31.07	46.3
Mean . . .		13 59 31.220	98 16 46.60
Div., Flex., etc.		. .	— 0.46

95 VIRGINIS.

1872.		h. m. s.	° ′ ″
Feb. 27	S.	13 59 56.74	98 42 5.9
May 14	S.	56.78	7.1
Mean . . .		13 59 56.760	98 42 6.50
Div., Flex., etc.		. .	— 0.45

κ VIRGINIS.

1872.		h. m. s.	° ′ ″
April 4	Ha.	14 6 4.18	99 40 36.2
16	S.	4.30	35.8
May 4	S.	4.24	36.0
Mean . . .		14 6 4.240	99 40 36.00
Div., Flex., etc.		. .	— 0.41

XIV, 1.

1872.		h. m. s.	° ′ ″
May 23	S.	14 6 24.67	121 26 41.8
31	E.	24.82	40.2
June 4	E.	24.52	. .
Mean . . .		14 6 24.670	121 26 41.00
Div., Flex., etc.		. .	— 0.03

B. A. C. 4722.

1872.		h. m. s.	° ′ ″
April 4	Ha.	14 8 20.97	107 36 9.0
May 6	S.	21.08	7.5
8	Ha.	20.89	9.2
Mean . . .		14 8 20.980	107 36 8.57
Div., Flex., etc.		. .	— 0.22

XIV, 2.

1872.		h. m. s.	° ′ ″
June 13	F.	14 9 4.56	124 24 44.9
Div., Flex., etc.		. .	+ 0.05

XIV, 3.

1872.		h. m. s.	° ′ ″
June 12	E.	14 10 13.94	116 21 51.9
17	F.	13.92	51.0
Mean . . .		14 10 13.930	116 21 51.45
Div., Flex., etc.		. .	— 0.10

XIV, 4.

1872.		h. m. s.	° ′ ″
June 4	E.	14 11 39.85	126 24 33.1
10	Ha.	39.88	32.0
Mean . . .		14 11 39.865	126 24 32.55
Div., Flex., etc.		. .	+ 0.14

λ VIRGINIS.

1872.		h. m. s.	° ′ ″
April 4	Ha.	14 12 11.11	102 46 50.1
16	S.	11.32	49.2
May 9	Ha.	11.30	50.6
Mean . . .		14 12 11.243	102 46 49.97
Div., Flex., etc.		. .	— 0.30

XIV, 5.

1872.		h. m. s.	° ′ ″
May 23	S.	14 12 44.68	117 27 29.6
June 17	F.	44.68	30.0
Mean . . .		14 12 44.680	117 27 29.80
Div., Flex., etc.		. .	— 0.09

XIV, 6.

1872.		h. m. s.	° ′ ″
May 21	Ha.	14 12 46.65	127 17 42.5
June 13	F.	46.77	43.8
Mean . . .		14 12 46.710	127 17 43.15
Div., Flex., etc.		. .	+ 0.19

XIV, 7.

1872.		h. m. s.	° ′ ″
June 4	E.	14 16 26.67	119 5 33.0
Div., Flex., etc.		. .	— 0.08

XIV, 8.

1872.		h. m. s.	° ′ ″
June 8	E.	14 16 38.00	122 30 14.1
Div., Flex., etc.		. .	0.00

XIV, 9.

1872.		h. m. s.	° ′ ″
June 6	Ha.	14 17 30.81	114 13 26.0
Div., Flex., etc.		. .	— 0.07

XIV, 10.

1872.		h. m. s.	° ′ ″
June 12	E.	14 17 59.83	118 18 45.8
Div., Flex., etc.		. .	— 0.08

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XIV, 11.

1872.	h. m. s.	° ′ ″
June 13 F.	14 18 54.22	129 17 37.6
17 F.	54.06	39.7
Mean . . .	14 18 54.140	129 17 38.65
Div., Flex., etc.	. .	+ 0.25

XIV, 12.

1872.	h. m. s.	° ′ ″
June 12 E.	14 20 34.22	. . .

XIV, 13.

1872.	h. m. s.	° ′ ″
June 4 E.	14 21 40.42	118 32 23.8
10 Ha.	40.49	23.3
Mean . . .	14 21 40.455	118 32 23.55
Div., Flex., etc.	. .	— 0.08

XIV, 14.

1872.	h. m. s.	° ′ ″
May 14 S.	14 22 8.93	115 26 23.8
June 19 S.	8.89	23.9
Mean . . .	14 22 8.910	115 26 23.85
Div., Flex., etc.	. .	— 0.09

XIV, 15.

1872.	h. m. s.	° ′ ″
May 21 Ha.	14 24 39.50	117 8 14.1
30 S.	39.42	14.7
June 4 E.	39.47	12.7
Mean . . .	14 24 39.463	117 8 13.83
Div., Flex., etc.	. .	— 0.09

ANONYMOUS.

1872.	h. m. s.	° ′ ″
April 22 F.	14 26 25.04	94 54 45.7
Div., Flex., etc.	. .	— 0.57

XIV, 16.

1872.	h. m. s.	° ′ ″
May 14 S.	14 29 55.85	124 57 36.2
23 S.	55.86	38.2
June 4 E.	55.78	37.0
Mean . . .	14 29 55.830	124 57 37.13
Div., Flex., etc.	. .	+ 0.07

XIV, 17.

1872.	h. m. s.	° ′ ″
May 21 Ha.	14 31 35.71	129 0 37.6
30 S.	35.73	34.3
June 10 E.	35.93	32.5
Mean . . .	14 31 35.790	129 0 34.80
Div., Flex., etc.	. .	+ 0.25

XIV, 18.

1872.	h. m. s.	° ′ ″
June 8 E.	14 32 30.52	116 34 40.6
12 E.	30.60	42.5
Mean . . .	14 32 30.560	116 34 41.55
Div., Flex., etc.	. .	— 0.09

XIV, 19.

1872.	h. m. s.	° ′ ″
June 4 E.	14 34 13.47	120 22 55.7
8 E.	13.45	57.6
10 Ha.	13.48	56.3
Mean . . .	14 34 13.467	120 22 56.53
Div., Flex., etc.	. .	— 0.05

XIV, 20.

1872.	h. m. s.	° ′ ″
May 14 S.	14 38 45.82	121 8 29.9
June 13 F.	45.83	32.8
Mean . . .	14 38 45.825	121 8 31.35
Div., Flex., etc.	. .	— 0.04

XIV, 21.

1872.	h. m. s.	° ′ ″
June 8 E.	14 39 49.86	124 11 40.4
13 F.	49.79	40.6
Mean . . .	14 39 49.825	124 11 40.50
Div., Flex., etc.	. .	+ 0.04

XIV, 22.

1872.	h. m. s.	° ′ ″
May 14 S.	14 22 7.08	126 51 38.5
June 17 F.	7.13	43.4
Mean . . .	14 22 7.105	126 51 40.95
Div., Flex., etc.	. .	+ 0.17

XIV, 23.

1872.	h. m. s.	° ′ ″
May 31 E.	14 42 22.51	118 30 6.9
June 8 E.	22.44	5.8
Mean . . .	14 42 22.475	118 30 6.35
Div., Flex., etc.	. .	— 0.08

XIV, 24.

1872.	h. m. s.	° ′ ″
June 11 S.	14 47 53.78	123 20 2.4
28 E.	53.81	1.8
Mean . . .	14 47 53.795	123 20 2.10
Div., Flex., etc.	. .	+ 0.02

ANONYMOUS.

1872.	h. m. s.	° ′ ″
June 13 F.	14 48 14.58	114 45 1.4
Div., Flex., etc.	. .	— 0.08

XIV, 25.

1872.	h. m. s.	° ′ ″
June 4 E.	14 49 4.42	111 27 54.9
Div., Flex., etc.	. .	— 0.12

XIV, 26.

1872.	h. m. s.	° ′ ″
June 8 E.	14 49 18.90	115 45 56.4
Div., Flex., etc.	. .	— 0.10

XIV, 27.

1872.	h. m. s.	° ′ ″
June 28 E.	14 49 35.76	118 38 16.5
Div., Flex., etc.	. .	— 0.08

B. A. C. 4923[1].

1872.	h. m. s.	° ′ ″
May 6 S.	14 49 58.85	110 50 3.2
10 S.	58.80	6.4
Mean . . .	14 49 58.825	110 50 4.80
Div., Flex., etc.	. .	— 0.14

XIV, 28.

1872.	h. m. s.	° ′ ″
May 30 S.	14 53 7.34	112 20 19.3
June 4 E.	7.42	17.0
8 E.	7.49	22.0
Mean . . .	14 53 7.417	112 20 19.43
Div., Flex., etc.	. .	— 0.09

ANONYMOUS.

1872.	h. m. s.	° ′ ″
May 4 F.	14 56 52.12	111 34 46.8
Div., Flex., etc.	. .	— 0.12

XIV, 30.

1872.	h. m. s.	° ′ ″
June 8 E.	14 58 58.03	127 26 50.1
17 F.	58.03	52.4
Mean . . .	14 58 58.030	127 26 51.25
Div., Flex., etc.	. .	+ 0.20

XIV, 29.

1872.	h. m. s.	° ′ ″
June 13 F.	15 0 48.25	116 13 15.0
28 E.	48.34	12.1
Mean . . .	15 0 48.295	116 13 13.55
Div., Flex., etc.	. .	— 0.10

XV, 1.

1872.	h. m. s.	° ′ ″
June 8 E.	15 1 20.11	120 11 17.5
Div., Flex., etc.	. .	— 0.06

XIV, 31.

1872.	h. m. s.	° ′ ″
May 30 S.	15 1 24.82	117 52 12.6
June 4 E.	24.74	11.0
10 Ha.	24.99	11.2
11 S.	24.87	12.4
Mean . . .	15 1 24.855	117 52 11.80
Div., Flex., etc.	. .	— 0.08

ι^1 LIBRÆ.

1872.	h. m. s.	° ′ ″
Jan. 22 S.	15 4 55.69	109 18 21.3
May 6 S.	55.70	18.3
9 Ha.	55.72	19.0
Mean . . .	15 4 55.703	109 18 19.53
Div., Flex., etc.	. .	— 0.18

XV, 4.

1872.	h. m. s.	° ′ ″
June 10 Ha.	15 11 23.01	123 33 45.0
Div., Flex., etc.	. .	+ 0.02

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XV, 6.

1872.		h. m. s.	° ′ ″
June 10	Ha.	15 13 15.54	127 45 11.7
Div., Flex., etc.		. .	+ 0.22

28 Libræ.

1872.		h. m. s.	° ′ ″
May 6	S.	15 13 38.44	107 41 29.0
10	S.	38.51	31.6
June 11	S.	38.41	30.6
Mean . . .		15 13 38.453	107 41 30.40
Div., Flex., etc.		. .	— 0.22

XV, 7.

1872.		h. m. s.	° ′ ″
June 17	F.	15 14 58.99	118 52 51.1
28	E.	59.13	50.0
Mean . . .		15 14 59.060	118 52 50.55
Div., Flex., etc.		. .	— 0.08

o^2 Libræ.

1872.		h. m. s.	° ′ ″
Jan. 22	S.	15 15 53.51	104 40 31.8
May 6	S.	53.64	29.3
14	S.	53.54	30.5
June 13	F.	53.62	31.6
Mean . . .		15 15 53.578	104 40 30.80
Div., Flex., etc.		. .	— 0.28

XV, 9.

1872.		h. m. s.	° ′ ″
June 17	F.	15 19 6.63	126 18 59.5
Div., Flex., etc.		. .	+ 0.14

ζ^1 Libræ.

1872.		h. m. s.	° ′ ″
Jan. 22	S.	15 21 2.42	106 16 5.5
May 10	S.	2.48	5.9
30	S.	2.33	4.6
June 11	S.	2.37	5.4
Mean . . .		15 21 2.400	106 16 5.35
Div., Flex., etc.		. .	— 0.24

XV, 10.

1872.		h. m. s.	° ′ ″
June 10	Ha.	15 22 55.07	125 11 51.4
Div., Flex., etc.		. .	+ 0.08

ζ^3 Libræ.

1872.		h. m. s.	° ′ ″
May 6	S.	15 23 27.37	106 10 4.0
June 18	Ha.	27.39	6.2
Mean . . .		15 23 27.380	106 10 5.10
Div., Flex., etc.		. .	— 0.25

ζ^4 Libræ.

1872.		h. m. s.	° ′ ″
May 14	S.	15 25 41.49	106 24 58.7
June 13	F.	41.54	25 0.3
17	F.	41.43	24 59.8
Mean . . .		15 25 41.487	106 24 59.60
Div., Flex., etc.		. .	— 0.24

XV, 14.

1872.		h. m. s.	° ′ ″
June 10	Ha.	15 28 9.81	122 39 47.1
Div., Flex., etc.		. .	0.00

γ Libræ.

1872.		h. m. s.	° ′ ″
Jan. 22	S.	15 28 22.04	104 21 39.8
June 11	S.	22.11	38.3
18	Ha.	22.14	39.7
Mean . . .		15 28 22.097	104 21 39.27
Div., Flex., etc.		. .	— 0.28

XV, 15.

1872.		h. m. s.	° ′ ″
June 28	E.	15 29 35.75	117 2 52.3
Div., Flex., etc.		. .	— 0.09

μ Coronæ Borealis.

1872.		h. m. s.	° ′ ″
May 10	S.	15 30 33.14	50 33 48.3
30	F.	33.28	49.1
June 17	S.	33.04	48.0
Mean . . .		15 30 33.153	50 53 48.47
Div., Flex., etc.		. .	— 0.24

Anonymous.

1872.		h. m. s.	° ′ ″
May 6	S.	15 32 2.39	113 22 50.0
14	S.	2.17	50.6
Mean . . .		15 32 2.280	113 22 50.30
Div., Flex., etc.		. .	— 0.07

42 Libræ.

1872.		h. m. s.	° ′ ″
June 29	F.	. .	113 23 59.3
July 6	E.	15 32 43.11	58.3
Mean . . .		15 32 43.11	58.80
Div., Flex., etc.		. .	— 0.07

XV, 20,

1872.		h. m. s.	° ′ ″
June 28	E.	15 33 16.32	111 11 14.8
Div., Flex., etc.		. .	— 0.13

B. A. C. 5175.

1872.		h. m. s.	° ′ ″
May 21	Ha.	15 34 2.39	45 58 39.0
June 13	F.	2.47	38.3
17	F.	2.53	38.8
Mean . . .		15 34 2.463	45 58 38.70
Div., Flex., etc.		. .	— 0.22

κ Libræ.

1872.		h. m. s.	° ′ ″
Jan. 22	S.	15 34 34.49	. .
June 11	S.	34.39	109 15 42.0
29	F.	. .	42.6
July 6	E.	34.46	41.5
Mean . . .		15 34 34.447	109 15 42.03
Div., Flex., etc.		. .	— 0.18

ι Serpentis.

1872.		h. m. s.	° ′ ″
May 30	S.	15 35 50.72	69 54 57.8
June 19	S.	50.68	56.8
Mean . . .		15 35 50.700	69 54 57.30
Div., Flex., etc.		. .	— 0.06

η Libræ.

1872.		h. m. s.	° ′ ″
May 6	S.	15 36 52.59	105 15 45.4
14	S.	52.45	45.7
June 29	F.	. .	46.4
July 6	E.	52.57	45.2
Mean . . .		15 36 52.537	105 15 45.68
Div., Flex., etc.		. .	— 0.26

XV, 21.

1872.		h. m. s.	° ′ ″
June 28	E.	15 38 25.58	117 39 27.3
Div., Flex., etc.		. .	— 0.08

B. A. C. 5249.

1872.		h. m. s.	° ′ ″
May 10	S.	15 44 43.12	27 0 15.1
21	Ha.	43.17	14.9
30	S.	43.37	16.1
Mean . . .		15 44 43.220	27 0 15.37
Div., Flex., etc.		. .	— 0.29

B. A. C. 5253.

1872.		h. m. s.	° ′ ″
May 6	S.	15 46 15.36	114 8 58.3
July 2	E.	15.35	58.6
6	E.	15.52	57.4
Mean . . .		15 46 15.410	114 8 58.10
Div., Flex., etc.		. .	— 0.07

θ Libræ.

1872.		h. m. s.	° ′ ″
Jan. 22	S.	15 46 32.34	. .
June 11	S.	32.46	106 21 8.5
19	S.	32.37	4.4
29	F.	. .	6.0
Mean . . .		15 46 32.390	106 21 6.30
Div., Flex., etc.		. .	— 0.24

B. A. C. 5279.

1872.		h. m. s.	° ′ ″
May 21	Ha.	15 49 18.05	33 47 39.5
June 13	F.	18.02	40.1
17	F.	. .	38.8
Mean . . .		15 49 18.035	33 47 39.47
Div., Flex., etc.		. .	— 0.26

π Scorpii.

1872.		h. m. s.	° ′ ″
May 6	S.	15 51 6.76	115 44 34.8
July 2	E.	6.74	35.3
6	E.	6.64	36.4
Mean . . .		15 51 6.713	115 44 35.50
Div., Flex., etc.		. .	— 0.09

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ε Coronæ Borealis.

1872.			h. m. s.	° ′ ″
May	21	Ha.	15 52 17.26	62 44 59.6
June	17	F.	17.34	45 0.6
Mean . . .			15 52 17.300	62 45 0.10
Div., Flex., etc.			. .	— 0.30

49 Libræ.

1872.			h. m. s.	° ′ ″
June	11	S.	15 53 8.77	106 9 15.3
	29	F.	. .	15.4
July	1	S.	8.72	15.2
	6	E.	8.62	13.7
Mean . . .			15 53 8.703	106 9 14.90
Div., Flex., etc.			. .	— 0.25

B. A. C. 5310.

1872.			h. m. s.	° ′ ″
May	30	S.	15 54 14.09	52 59 30.6
June	19	S.	14.19	29.8
Mean . . .			15 54 14.140	52 59 30.20
Div., Flex., etc.			. .	— 0.41

B. A. C. 5338.

1872.			h. m. s.	° ′ ″
May	21	Ha.	15 58 48.92	43 36 25.6
	30	S.	48.88	25.4
June	17	F.	. .	24.5
Mean . . .			15 58 48.900	43 36 25.17
Div., Flex., etc.			. .	— 0.20

ω² Scorpii.

1872.			h. m. s.	° ′ ″
May	10	S.	15 59 54.37	110 31 14.4
June	29	F.	. .	14.4
July	2	E.	54.21	13.0
	6	E.	54.12	14.7
Mean . . .			15 59 54.233	110 31 14.12
Div., Flex., etc.			. .	— 0.15

Lacaille 6716.

1872.			h. m. s.	° ′ ″
June	13	F.	16 2 30.79	129 47 15.6
July	8	Ha.	30.55	15.0
	10	E.	31.08	11.2
Mean . . .			16 2 30.807	129 47 13.93
Div., Flex., etc.			. .	+ 0.25

ν¹ Scorpii.

1872.			h. m. s.	° ′ ″
May	6	S.	16 4 32.45	109 6 54.0
	30	S.	32.29	55.6
June	11	S.	32.40	55.5
	13	F.	32.41	57.5
	17	F.	. .	54.8
	19	S.	32.34	54.5
Mean . . .			16 4 32.378	109 6 55.32
Div., Flex., etc.			. .	— 0.19

ν² Scorpii.

1872.			h. m. s.	° ′ ″
May	6	S.	16 4 33.55	109 7 32.0
June	11	S.	33.46	33.0
	19	S.	33.51	33.1
Mean . . .			16 4 33.507	109 7 32.70
Div., Flex., etc.			. .	— 0.19

17 Herculis.

1872.			h. m. s.	° ′ ″
May	10	S.	16 10 49.31	66 33 26.9
June	13	F.	49.23	27.3
	26	Ha.	49.22	27.0
Mean . . .			16 10 49.253	66 33 27.07
Div., Flex., etc.			. .	— 0.04

Anonymous.

1872.			h. m. s.	° ′ ″
June	13	F.	16 12 25.37	108 33 40.7
	17	F.	25.33	40.7
July	8	Ha.	25.35	40.5
Mean . . .			16 12 25.350	108 33 40.63
Div., Flex., etc.			. .	— 0.20

19 Scorpii.

1872.			h. m. s.	° ′ ″
July	1	S.	16 12 56.25	113 51 30.4
	6	E.	56.22	31.6
	19	F.	56.15	31.5
Mean . . .			16 12 56.207	113 51 31.17
Div., Flex., etc.			. .	— 0.07

σ Scorpii.

1872.			h. m. s.	° ′ ″
July	2	E.	16 13 24.66	116 16 58.4
	6	E.	24.58	59.3
	26	E.	24.66	17 1.8
Mean . . .			16 13 24.633	116 16 59.83
Div., Flex., etc.			. .	— 0.10

B. A. C. 5459.

1872.			h. m. s.	° ′ ″
June	26	Ha.	16 15 7.24	29 56 3.7
July	8	Ha.	7.16	3.3
	10	E.	7.70	2.5
Mean . . .			16 15 7.367	26 56 3.17
Div., Flex., etc.			. .	— 0.29

Anonymous.

1872.			h. m. s.	° ′ ″
June	13	F.	16 15 12.75	124 21 36.2
July	2	E.	12.47	. .
	19	F.	12.37	38.7
	20	Ha.	12.56	36.4
Mean . . .			16 15 12.538	124 21 37.10
Div., Flex., etc.			. .	+ 0.04

Anonymous.

1872.			h. m. s.	° ′ ″
June	13	F.	16 15 17.99	124 22 13.4
July	2	E.	17.71	. .
	19	F.	17.75	8.3
	20	Ha.	17.92	9.2
Mean . . .			16 15 17.842	124 22 10.30
Div., Flex., etc.			. .	— 0.05

ξ Coronæ Borealis.

1872.			h. m. s.	° ′ ″
May	10	S.	16 17 6.69	58 48 33.3
June	17	F.	6.77	33.5
July	12	Ha.	6.68	34.8
Mean . . .			16 17 6.713	58 48 33.87
Div., Flex., etc.			. .	— 0.33

χ Ophiuchi.

1872.			h. m. s.	° ′ ″
July	1	S.	16 19 36.39	108 9 49.1
	2	E.	36.33	48.4
	6	E.	36.60	49.2
	20	Ha.	36.60	49.0
Mean . . .			16 19 36.480	108 9 48.92
Div., Flex., etc.			. .	— 0.22

B. A. C. 5503.

1872.			h. m. s.	° ′ ″
June	17	F.	16 21 45.89	37 59 32.8
	26	Ha.	45.63	33.9
July	8	Ha.	45.54	34.0
Mean . . .			16 21 45.687	37 59 33.57
Div., Flex., etc.			. .	— 0.11

22 Scorpii.

1872.			h. m. s.	° ′ ″
July	2	E.	16 22 25.99	114 49 49.6
	6	E.	26.12	51.8
	19	F.	25.93	51.8
Mean . . .			16 22 26.013	114 49 51.07
Div., Flex., etc.			. .	— 0.08

β Herculis.

1872.			h. m. s.	° ′ ″
Jan.	25	S.	16 24 43.03	. .
May	30	S.	43.14	68 13 48.3
June	19	S.	43.11	45.9
Oct.	21	S.	43.15	47.8
Mean . . .			16 24 43.108	68 13 47.33
Div., Flex., etc.			. .	— 0.01

B. A. C. 5560.

1872.			h. m. s.	° ′ ″
June	18	Ha.	16 31 37.52	28 54 30.7
July	8	Ha.	37.28	29.0
	10	E.	37.45	29.4
Mean . . .			16 31 37.417	28 54 29.70
Div., Flex., etc.			. .	— 0.30

16 Draconis.

1872.			h. m. s.	° ′ ″
May	30	S.	16 33 10.08	36 50 30.7
June	18	Ha.	10.08	32.2
July	2	E.	10.01	30.2
	8	Ha.	9.83	30.7
Mean . . .			16 33 10.000	36 50 30.95
Div., Flex., etc.			. .	— 0.16

17¹ Draconis.

1872.			h. m. s.	° ′ ″
May	30	S.	16 33 12.57	36 49 3.3
June	18	Ha.	12.67	4.3
July	2	E.	12.35	2.7
	8	Ha.	12.45	2.2
Mean . . .			16 33 12.510	36 49 3.12
Div., Flex., etc.			. .	— 0.16

17² Draconis.

1872.			h. m. s.	° ′ ″
May	30	S.	16 33 12.97	. .

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48 Herculis.

1872.			h. m. s.	° ′ ″
May	6	S.	16 44 16.73	59 48 50.2
	30	S.	16.64	52.5
July	2	E.	16.56	50.0
Mean . . .			16 14 16.643	59 48 50.90
Div., Flex., etc.			. .	— 0.32

50 Herculis.

1872.			h. m. s.	° ′ ″
May	6	S.	16 45 39.31	59 58 24.4
July	2	E.	39.34	24.2
	5	S.	39.23	24.2
Mean . . .			16 45 39.293	59 58 24.27
Div., Flex., etc.			. .	— 0.32

56 Herculis.

1872.			h. m. s.	° ′ ″
June	17	F.	16 49 47.99	64 3 42.0
	18	Ha.	47.95	42.2
July	1	S.	47.91	40.3
Mean . . .			16 49 47.950	64 3 41.50
Div., Flex., etc.			. .	— 0.24

29 Ophiuchi.

1872.			h. m. s.	° ′ ″
July	5	S.	16 54 22.17	108 41 39.6
	6	E.	22.17	41.0
	8	Ha.	22.03	41.0
Mean . . .			16 54 22.123	108 41 40.53
Div., Flex., etc.			. .	— 0.20

B. A. C. 5752.

1872.			h. m. s.	° ′ ″
June	17	F.	16 57 0.92	33 7 21.5
July	1	S.	0.52	22.0
	8	Ha.	0.71	22.7
Mean . . .			16 57 0.717	33 7 22.07
Div., Flex., etc.			. .	— 0.27

B. A. C. 5797.

1872.			h. m. s.	° ′ ″
June	17	F.	17 5 6.43	31 33 48.3
	18	Ha.	6.41	48.9
July	1	S.	6.03	50.0
Mean . . .			17 5 6.290	31 33 49.07
Div., Flex., etc.			. .	— 0.28

δ Herculis.

1872.			h. m. s.	° ′ ″
June	18	Ha.	17 9 46.50	65 0 29.6
July	8	Ha.	46.45	29.5
Mean . . .			17 9 46.475	65 0 29.55
Div., Flex., etc.			. .	— 0.16

B. A. C. 5831.

1872.			h. m. s.	° ′ ″
July	12	Ha.	17 10 18.16	113 55 45.4
	19	F.	18.05	43.2
	20	Ha.	18.14	43.6
Mean . . .			17 10 18.117	113 55 44.07
Div., Flex., etc.			. .	— 0.07

u Herculis.

1872.			h. m. s.	° ′ ″
May	6	S.	17 12 35.96	56 45 37.9
July	1	S.	35.90	37.1
	8	Ha.	35.83	37.7
Mean . . .			17 12 35.897	56 45 37.57
Div., Flex., etc.			. .	— 0.32

ξ Ophiuchi.

1872.			h. m. s.	° ′ ″
July	20	Ha.	17 13 20.02	110 58 22.5
	26	E.	20.24	23.6
Mean . . .			17 13 20.130	110 58 23.05
Div., Flex., etc.			. .	— 0.14

B. A. C. 5853.

1872.			h. m. s.	° ′ ″
July	12	Ha.	17 13 33.19	40 10 14.9
	19	F.	33.41	14.3
	27	F.	33.40	13.2
Mean . . .			17 13 33.333	40 10 14.13
Div., Flex., etc.			. .	— 0.11

θ Ophiuchi.

1872.			h. m. s.	° ′ ″
July	27	F.	17 14 8.99	115 52 7.3
	30	E.	8.99	7.6
	31	F.	8.95	10.0
Mean . . .			17 14 8.977	115 52 8.30
Div., Flex., etc			. .	— 0.10

43 Ophiuchi.

1872.			h. m. s.	° ′ ″
July	26	E.	17 15 18.24	118 0 58.3
	30	E.	18.43	57.5
	31	F.	18.16	1 0.1
Mean . . .			17 15 18.277	118 0 58.63
Div., Flex., etc.			. .	— 0.08

w Herculis.

1872.			h. m. s.	° ′ ″
June	17	F.	17 15 52.35	57 21 57.9
July	19	F.	52.40	58.7
	20	Ha.	52.25	59.2
Mean . . .			17 15 52.333	57 21 58.60
Div., Flex., etc.			. .	— 0.32

74 Herculis.

1872.			h. m. s.	° ′ ″
June	18	Ha.	17 16 44.30	43 37 57.5
July	12	Ha.	44.27	57.5
Mean . . .			17 16 44.285	43 37 57.50
Div., Flex., etc.			. .	— 0.20

B. A. C. 5895.

1872.			h. m. s.	° ′ ″
May	6	S.	17 20 1.29	52 55 57.7
June	11	S.	1.15	57.7
July	1	S.	1.10	57.6
Mean . . .			17 20 1.180	52 55 57.67
Div., Flex., etc.			. .	— 0.41

B. A. C. 5962.

1872.			h. m. s.	° ′ ″
June	17	F.	17 31 44.47	59 8 4.3
	18	Ha.	44.60	3.5
Mean . . .			17 31 44.535	59 8 3.90
Div., Flex., etc.			. .	— 0.33

O. Arg. N. 17415.

1872.			h. m. s.	° ′ ″
March	29	F.	17 37 10.65	. .
May	6	S.	10.45	21 32 39.2
June	17	F.	10.35	40.8
Mean . . .			17 37 10.483	21 32 40.00
Div., Flex., etc.			. .	— 0.24

O. Arg. N. 17420.

1872.			h. m. s.	° ′ ″
March	29	F.	17 37 19.13	. .
May	6	S.	18.88	21 32 54.8
June	17	F.	18.90	56.0
Mean . . .			17 37 18.970	21 32 55.40
Div., Flex., etc.			. .	— 0.24

89 Herculis.

1872.			h. m. s.	° ′ ″
May	6	S.	17 50 15.45	63 55 40.4
	23	S.	15.46	40.5
Mean . . .			17 30 15.455	63 55 40.45
Div., Flex., etc.			. .	— 0.24

ξ Herculis.

1872.			h. m. s.	° ′ ″
June	18	Ha.	17 51 19.04	33 6 24.3
July	1	S.	18.98	23.2
	8	Ha.	19.00	24.0
Mean . . .			17 51 19.007	33 6 23.83
Div., Flex., etc.			. .	— 0.27

o Herculis.

1872.			h. m. s.	° ′ ″
May	23	S.	. .	61 15 12.2
June	17	F.	18 2 33.11	12.6
	18	Ha.	33.06	12.9
July	1	S.	33.02	12.3
Mean . . .			18 2 33.063	61 15 12.50
Div., Flex., etc.			. .	— 0.30

Anonymous.

1872.			h. m. s.	° ′ ″
July	20	Ha.	18 5 1.14	111 0 54.2
	27	F.	1.06	57.9
	31	F.	1.07	55.0
Mean . . .			18 5 1.090	111 0 55.70
Div., Flex., etc.			. .	— 0.14

B. A. C. 6185.

1872.			h. m. s.	° ′ ″
June	17	F.	18 7 54.31	35 45 2.7
July	1	S.	54.34	2.8
	8	Ha.	54.19	3.8
Mean . . .			18 7 54.280	35 45 3.10
Div., Flex., etc.			. .	— 0.21

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105 Herculis.

1872.		h. m. s.	° ′ ″
July 1	S.	18 13 54.66	65 36 18.5
12	Ha.	54.63	19.3
19	F.	54.74	19.5
Mean . . .		18 13 54.677	63 36 19.10
Div., Flex., etc.		. .	— 0.11

ε Sagittarii.

1872.		h. m. s.	° ′ ″
July 20	Ha.	18 15 40.43	124 26 30.2
27	F.	40.38	27.3
31	F.	40.54	31.9
Mean . . .		18 15 40.450	124 26 29.80
Div., Flex., etc.		. .	+ 0.05

21 Sagittarii.

1872.		h. m. s.	° ′ ″
July 19	F.	18 17 43.48	110 36 26.6
27	F.	43.59	28.2
30	E.	43.67	26.8
31	F.	43.64	26.6
Mean . . .		18 17 43.595	110 36 27.05
Div., Flex., etc.		. .	— 0.15

B. A. C. 6256.

1872.		h. m. s.	° ′ ″
June 17	F.	18 19 17.76	121 36 14.1
July 8	Ha.	17.54	12.6
19	F.	17.44	12.8
20	Ha.	17.69	13.2
27	F.	17.55	13.7
31	F.	17.69	14.4
Mean . . .		18 19 17.612	121 36 13.47
Div., Flex., etc.		. .	— 0.03

λ Sagittarii.

1872.		h. m. s.	° ′ ″
May 26	S.	18 20 4.27	115 29 25.2
Aug. 3	E.	4.29	22.9
7	E.	. .	23.2
17	Ha.	4.21	26.6
Mean . . .		18 20 4.257	115 29 24.48
Div., Flex., etc.		. .	— 0.09

δ Draconis.

1872.		h. m. s.	° ′ ″
March 31	Ha.	18 22 2.63	31 16 23.1
May 6	S.	2.55	22.9
July 8	Ha.	2.59	21.8
Mean . . .		18 22 2.590	31 16 22.60
Div., Flex., etc.		. .	— 0.29

B. A. C. 6287.

1872.		h. m. s.	° ′ ″
May 23	S.	18 22 40.48	108 48 26.1
June 11	S.	40.43	27.4
July 30	E.	40.42	26.6
Aug. 7	E.	40.36	28.0
Mean . . .		18 22 40.422	108 48 27.02
Div., Flex., etc.		. .	— 0.20

Anonymous.

1872.		h. m. s.	° ′ ″
Aug. 17	Ha.	18 22 40.89	123 4 17.0
21	Ha.	40.93	17.3
Mean . . .		18 22 40.910	123 4 17.15
Div., Flex., etc.		. .	+ 0.01

B. A. C. 6311.

1872.		h. m. s.	° ′ ″
July 1	S.	18 24 55.94	30 22 27.9
12	Ha.	55.82	27.8
30	E.	55.82	26.3
Mean . . .		18 24 55.860	30 22 27.33
Div., Flex., etc.		. .	— 0.29

Anonymous.

1872.		h. m. s.	° ′ ″
July 19	F.	18 25 16.55	127 47 57.2
27	F.	16.73	59.4
Mean . . .		18 25 16.640	127 47 58.30
Div., Flex., etc.		. .	— 0.22

Anonymous.

1872.		h. m. s.	° ′ ″
July 19	F.	18 25 37.41	128 0 9.3
27	F.	37.40	14.7
Mean . . .		18 25 37.405	128 0 12.00
Div., Flex., etc.		. .	— 0.23

B. A. C. 6322.

1872.		h. m. s.	° ′ ″
July 1	S.	18 27 26.65	66 28 36.2
31	F.	26.62	37.5
Mean . . .		18 27 26.635	66 28 36.85
Div., Flex., etc.		. .	— 0.05

O. Arg. S. 18521.

1872.		h. m. s.	° ′ ″
Aug. 7	E.	18 32 34.08	115 6 31.6
Div., Flex., etc.		. .	— 0.08

O. Arg. S. 18525.

1872.		h. m. s.	° ′ ″
Aug. 7	E.	18 32 54.98	115 7 34.3
Div., Flex., etc.		. .	— 0.08

Anonymous.

1872.		h. m. s.	° ′ ″
Aug. 21	Ha.	18 33 44.47	115 6 16.6
Div., Flex., etc.		. .	— 0.08

B. A. C. 6365.

1872.		h. m. s.	° ′ ″
July 27	F.	. .	51 45 2.9
30	E.	18 35 52.11	2.8
31	F.	51.88	2.1
Aug. 3	E.	52.01	0.6
Mean . . .		18 35 52.000	51 45 2.10
Div., Flex., etc.		. .	— 0.33

Anonymous.

1872.		h. m. s.	° ′ ″
June 11	S.	18 36 48.57	115 29 37.7
Div., Flex., etc.		. .	— 0.09

φ Sagittarii.

1872.		h. m. s.	° ′ ″
May 26	S.	18 37 39.49	117 7 10.8
July 31	F.	39.40	10.7
Aug. 7	E.	39.51	11.2
17	Ha.	39.52	10.1
21	Ha.	39.57	. .
Mean . . .		18 37 39.498	117 7 10.70
Div., Flex., etc.		. .	— 0.09

B. A. C. 6393.

1872.		h. m. s.	° ′ ″
July 27	F.	. .	27 22 38.9
31	F.	18 39 49.20	38.9
Aug. 21	Ha.	49.03	39.4
Mean . . .		18 39 49.115	27 22 39.07
Div., Flex., etc.		. .	— 0.29

110 Herculis.

1872.		h. m. s.	° ′ ″
July 1	S.	18 40 9.24	69 34 28.1
Aug. 26	S.	9.11	28.6
30	S.	9.26	29.7
Mean . . .		18 40 9.203	69 34 28.80
Div., Flex., etc.		. .	— 0.10

29 Sagittarii.

1872.		h. m. s.	° ′ ″
Aug. 3	E.	18 42 4.41	110 28 5.6
7	E.	4.44	3.4
17	Ha.	4.37	3.5
Mean . . .		18 42 4.407	110 28 4.17
Div., Flex., etc.		. .	— 0.16

B. A. C. 6410.

1872.		h. m. s.	° ′ ″
July 27	F.	. .	29 5 12.2
Aug. 23	S.	18 42 47.72	14.7
26	S.	47.83	14.3
30	S.	47.80	14.9
Mean . . .		18 42 47.783	29 5 14.02
Div., Flex., etc.		. .	— 0.30

33 Sagittarii.

1872.		h. m. s.	° ′ ″
July 30		18 46 21.14	111 30 50.8
31	E.	21.08	49.5
Aug. 7	F.	21.15	51.0
	E.		
Mean . . .		18 46 21.123	111 30 50.43
Div., Flex., etc.		. .	— 0.12

113 Herculis.

1872.		h. m. s.	° ′ ″
May 23	S.	18 49 20.71	67 30 54.8
July 12	Ha.	20.68	55.5
Mean . . .		18 49 20.695	67 30 55.15
Div., Flex., etc.		. .	— 0.01

ξ¹ Sagittarii.

1872.		h. m. s.	° ′ ″
May 26	S.	18 49 44.10	110 49 16.7
June 11	S.	44.09	16.5
July 31	F.	44.01	16.0
Mean . . .		18 49 44.067	110 49 16.40
Div., Flex., etc.		. .	— 0.15

o Sagittarii.

1872.		h. m. s.	° ′ ″
May 26	S.	18 57 0.73	111 55 35.9
July 27	F.	0.67	35.4
Aug. 3	E.	0.74	33.5
Mean . . .		18 57 0.713	111 55 34.93
Div., Flex., etc.		. .	— 0.10

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τ Sagittarii.

1872.		h. m. s.	° ′ ″
July 31	F.	18 58 56.78	117 51 18.7
Aug. 3	E.	57.05	16.9
7	E.	56.98	18.3
Mean . . .		18 58 56.937	117 51 17.97
Div., Flex., etc.		. .	— 0.08

B. A. C. 6527.

1872.		h. m. s.	° ′ ″
July 12	Ha.	18 59 16.17	71 2 49.6
19	F.	16.13	49.2
27	F.	16.15	48.7
Mean . . .		18 59 16.150	71 2 49.17
Div., Flex., etc.		. .	— 0.10

Weisse 1542.

1872.		h. m. s.	° ′ ″
July 19	F.	19 0 49.52	. . . .
Aug. 7	E.	49.54	91 19 16.2
17	Ha.	49.57	16.4
21	Ha.	49.43	17.7
Mean . . .		19 0 49.515	91 19 16.77
Div., Flex., etc.		. .	— 0.50

π Sagittarii.

1872.		h. m. s.	° ′ ″
May 26	S.	19 2 9.02	111 13 28.6
July 31	F.	9.05	29.3
Aug. 3	E.	9.12	27.3
Mean . . .		19 2 9.063	111 13 28.40
Div., Flex., etc.		. .	— 0.13

ψ Sagittarii.

1872.		h. m. s.	° ′ ″
July 23	F.	19 7 41.53	115 28 30.0
27	F.	41.38	28.4
31	F.	41.37	29.1
Aug. 7	E.	41.51	29.1
Mean . . .		19 7 41.448	115 28 29.15
Div., Flex., etc.		. .	— 0.09

Anonymous.

1872.		h. m. s.	° ′ ″
Aug. 23	S.	19 9 40.24	109 12 36.9
Div., Flex., etc.		. .	— 0.19

B. A. C. 6607.

1872.		h. m. s.	° ′ ″
July 27	F.	19 12 57.77	112 38 16.3
Aug. 7	E.	57.88	17.2
17	Ha.	57.74	17.7
21	Ha.	57.80	18.9
Mean . . .		19 12 57.798	112 38 17.52
Div., Flex., etc.		. .	— 0.08

ρ^1 Sagittarii.

1872.		h. m. s.	° ′ ″
July 22	E.	19 14 14.84	108 5 9.3
23	F.	15.00	9.2
Aug. 23	S.	14.82	9.5
30	S.	14.90	10.0
Mean . . .		19 14 14.890	108 5 9.50
Div., Flex., etc.		. .	— 0.22

ρ^2 Sagittarii.

1872.		h. m. s.	° ′ ″
Aug. 26	S.	19 14 22.85	108 32 35.6
Sept. 3	S.	22.91	34.4
Mean . . .		19 14 22.880	108 32 35.00
Div., Flex., etc.		. .	— 0.20

B. A. C. 6628.

1872.		h. m. s.	° ′ ″
Aug. 3	E.	19 16 31.23	118 6 38.5
21	Ha.	31.29	39.6
23	S.	31.22	39.7
Mean . . .		19 16 31.247	118 6 39.27
Div., Flex., etc.		. .	— 0.08

B. A. C. 6658.

1872.		h. m. s.	° ′ ″
July 1	S.	19 20 13.19	108 36 18.6
Aug. 21	Ha.	13.41	19.9
26	S.	13.36	19.3
Mean . . .		19 20 13.320	108 36 19.27
Div., Flex., etc.		. .	— 0.20

Anonymous.

1872.		h. m. s.	° ′ ″
Aug. 21	Ha.	19 20 38.49	108 36 57.4
Div., Flex., etc.		. .	— 0.20

Anonymous.

1872.		h. m. s.	° ′ ″
Aug. 23	S.	19 28 27.04	130 1 40.4
26	S.	27.20	. .
Sept. 14	F.	27.04	41.7
Mean . . .		19 28 27.093	130 1 41.05
Div., Flex., etc.		. .	+ 0.25

Anonymous.

1872.		h. m. s.	° ′ ″
July 31	F.	19 29 25.10	130 1 48.8
Div., Flex., etc.		. .	+ 0.25

f Sagittarii.

1872.		h. m. s.	° ′ ″
July 1	S.	19 38 53.52	110 3 59.5
22	E.	53.53	3 59.3
Aug. 21	Ha.	53.70	4 0.9
Mean . . .		19 38 53.583	110 3 59.9
Div., Flex., etc.		. .	— 0.17

O. Arg. S. 20022.

1872.		h. m. s.	° ′ ″
Aug. 21	Ha.	19 44 52.75	117 9 50.6
Div., Flex., etc.		. .	— 0.09

O. Arg. S. 20024[1].

1872.		h. m. s.	° ′ ″
Aug. 26	S.	19 44 56.93	117 12 53.7
30	S.	56.91	54.5
Sept. 6	F.	56.95	56.7
Mean . . .		19 44 56.930	117 12 54.97
Div., Flex., etc.		. .	— 0.09

O. Arg. S. 20024[2].

1872.		h. m. s.	° ′ ″
Aug. 26	S.	19 44 57.07	117 13 2.7
30	S.	57.04	4.8
Mean . . .		19 44 57.055	117 13 3.75
Div., Flex., etc.		. .	— 0.09

ω Sagittarii.

1872.		h. m. s.	° ′ ″
May 26	S.	19 47 59.73	116 38 12.2
Aug. 30	S.	59.80	12.4
Mean . . .		59.765	12.30
Div., Flex., etc.		. .	— 0.09

Anonymous.

1872.		h. m. s.	° ′ ″
Aug. 21	Ha.	20 4 14.02	69 28 41.6
Sept. 18	F.	13.96	43.8
Mean . . .		20 4 13.990	69 28 42.70
Div., Flex., etc.		. .	— 0.08

B. A. C. 6933.

1872.		h. m. s.	° ′ ″
Aug. 21	Ha.	20 4 17.74	69 27 49.4
Sept. 16	S.	17.70	49.2
18	F.	17.69	51.4
Mean . . .		20 4 17.710	69 27 50.00
Div., Flex., etc.		. .	— 0.08

Anonymous.

1872.		h. m. s.	° ′ ″
Sept. 19	F.	20 5 3.50	104 4 26.3
24	S.	3.55	25.2
28	E.	3.69	24.8
Mean . . .		20 5 3.580	104 4 25.43
Div., Flex., etc.		. .	— 0.29

Anonymous.

1872.		h. m. s.	° ′ ″
Sept. 28	E.	20 5 27.33	104 3 21.8
Div., Flex., etc.		. .	— 0.29

B. A. C. 6992.

1872.		h. m. s.	° ′ ″
Aug. 23	S.	20 13 35.01	105 11 12.4
Sept. 3	S.	35.02	11.0
14	F.	34.98	14.0
Mean . . .		20 13 35.003	105 11 12.47
Div., Flex., etc.		. .	— 0.27

β Capricorni.

1872.		h. m. s.	° ′ ″
Aug. 23	S.	20 13 49.03	105 11 2.9
Sept. 3	S.	49.06	0.3
14	F.	49.06	3.5
Mean . . .		20 13 49.050	105 11 2.23
Div., Flex., etc.		. .	— 0.27

Anonymous.

1872.		h. m. s.	° ′ ″
Aug. 21	Ha.	20 15 45.43	70 44 36.1
Div., Flex., etc.		. .	— 0.12

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O. Arg. S. 20533.

1872.			h. m. s.	° ′ ″
Sept.	3	S.	20 21 33.54	111 19 23.8
	19	F.	33.50	26.0
	24	S.	33.61	25.2
Mean . . .			20 21 33.550	111 19 25.00
Div., Flex., etc.			. .	— 0.03

B. A. C. 7049.

1872.			h. m. s.	° ′ ″
Sept.	16	S.	20 22 0.52	112 48 49.7
	21	S.	0.54	50.7
	28	E.	0.64	49.3
Mean . . .			20 22 0.567	112 48 49.90
Div., Flex., etc.			. .	— 0.08

B. A. C. 7077.

1872.			h. m. s.	° ′ ″
May	26	S.	20 25 14.93	115 22 27.9
Sept.	14	F.	14.91	28.4
	28	E.	15.09	27.3
Mean . . .			20 25 14.977	115 22 27.87
Div., Flex., etc.			. .	— 0.09

B. A. C. 7083.

1872.			h. m. s.	° ′ ″
Sept.	19	F.	20 25 45.83	44 30 20.9
	21	S.	45.86	19.8
	24	S.	45.89	19.9
Mean . . .			20 25 45.860	44 30 20.20
Div., Flex., etc.			. .	— 0.22

τ^1 Capricorni.

1872.			h. m. s.	° ′ ″
Sept.	3	S.	20 30 10.42	105 35 18.4
	16	S.	10.34	18.7
	28	E.	10.56	20.3
Mean . . .			20 30 10.440	105 35 19.13
Div., Flex., etc.			. .	— 0.26

τ^2 Capricorni.

1872.			h. m. s.	° ′ ″
May	26	S.	20 32 6.80	105 24 7.5
	28	F.	6.80	8.0
Sept.	24	S.	. .	6.6
	28	E.	6.99	17.1
Mean . . .			20 32 6.863	105 24 9.80
Div., Flex., etc.			. .	— 0.26

Anonymous.

1872.			h. m. s.	° ′ ″
Aug.	17	Ha.	20 37 21.67	55 0 4.6
Sept.	3	S.	21.50	4.6
	24	S.	. .	5.0
Oct.	9	S.	21.47	4.5
Mean . . .			20 37 21.547	55 0 4.68
Div., Flex., etc.			. .	— 0.37

17 Capricorni.

1872.			h. m. s.	° ′ ″
May	28	F.	20 38 44.72	111 58 40.0
Sept.	14	F.	44.59	41.3
Oct.	21	S.	44.64	38.4
Mean . . .			20 38 44.650	111 58 39.90
Div., Flex., etc.			. .	— 0.10

B. A. C. 7198.

1872.			h. m. s.	° ′ ″
Sept.	16	S.	20 40 22.71	43 10 0.0
	19	F.	22.67	0.9
Oct.	31	F.	22.66	0.8
Mean . . .			20 40 22.680	43 10 0.57
Div., Flex., etc.			. .	— 0.19

Weisse (2) 1373.

1872.			h. m. s.	° ′ ″
Aug.	17	Ha.	20 42 4.36	56 5 41.4
Sept.	3	S.	4.26	41.2
Oct.	9	S.	4.20	43.7
	21	S.	4.28	43.0
Mean . . .			20 42 4.275	56 5 42.32
Div., Flex., etc.			. .	— 0.32

XX, 14.

1872.			h. m. s.	° ′ ″
Nov.	1	S.	20 42 57.75	115 27 11.2
Div., Flex., etc.			. .	— 0.09

B. A. C. 7237.

1872.			h. m. s.	° ′ ″
May	28	F.	20 45 30.70	114 15 39.0
Oct.	9	S.	30.51	40.6
Mean . . .			20 45 30.605	114 15 39.80
Div., Flex., etc.			. .	— 0.07

19 Capricorni.

1872.			h. m. s.	° ′ ″
May	28	F.	20 47 33.74	118 24 24.8
Sept.	14	F.	33.72	26.1
	16	S.	33.70	22.5
Mean . . .			20 47 33.720	118 24 24.47
Div., Flex., etc.			. .	— 0.22

XX, 19.

1872.			h. m. s.	° ′ ″
Nov.	1	S.	20 49 10.85	116 46 56.1
Div., Flex., etc.			. .	— 0.09

9 Aquarii.

1872.			h. m. s.	° ′ ″
Aug.	17	Ha.	20 54 5.01	104 1 44.4
Sept.	16	S.	4.94	41.2
Mean . . .			20 54 4.975	104 1 42.80
Div., Flex., etc.			. .	— 0.29

η Capricorni.

1872.			h. m. s.	° ′ ″
Aug.	17	Ha.	20 57 7.08	110 21 33.8
Sept.	14	F.	7.09	36.0
	19	F.	6.99	34.1
Mean . . .			20 57 7.053	110 21 34.63
Div., Flex., etc.			. .	— 0.16

θ Capricorni.

1872.			h. m. s.	° ′ ″
May	26	S.	20 58 44.91	107 44 24.3
	28	F.	44.99	26.4
Sept.	16	S.	44.95	22.1
Mean . . .			20 58 44.950	107 44 24.27
Div., Flex., etc.			. .	— 0.22

χ Capricorni.

1872.			h. m. s.	° ′ ″
Sept.	14	F.	21 1 13.55	111 42 24.5
Oct.	21	S.	13.60	21.6
	31	F.	. .	23.5
Nov.	1	S.	13.62	21.8
Mean . . .			21 1 13.590	111 42 22.85
Div., Flex., etc.			. .	— 0.15

27 Capricorni.

1872.			h. m. s.	° ′ ″
Oct.	31	F.	. . .	111 4 9.0
Div., Flex., etc.			. .	— 0.14

φ Capricorni.

1872.			h. m. s.	° ′ ″
Oct.	31	F.	21 8 20.63	111 10 55.5
Nov.	1	S.	20.62	52.8
	8	F.	20.60	52.4
Mean . . .			21 8 20.617	111 10 53.57
Div., Flex., etc.			. .	— 0.13

34 Vulpeculæ.

1872.			h. m. s.	° ′ ″
Aug.	17	Ha.	21 15 17.28	66 40 54.7
Sept.	14	F.	17.18	56.8
Nov.	7	E.	17.31	54.3
Mean . . .			21 15 17.257	66 40 55.27
Div., Flex., etc.			. .	— 0.04

Anonymous.

1872.			h. m. s.	° ′ ″
Oct.	31	F.	21 16 6.45	51 36 52.5
Nov.	8	F.	6.40	52.5
Mean . . .			21 16 6.425	51 36 52.50
Div., Flex., etc.			. .	— 0.32

33 Capricorni.

1872.			h. m. s.	° ′ ″
Aug.	30	S.	21 16 53.91	111 23 40.8
Oct.	31	F.	53.95	40.7
Nov.	7	E.	53.84	40.3
Mean . . .			21 16 53.900	111 23 40.60
Div., Flex., etc.			. .	— 0.12

B. A. C. 7430.

1872.			h. m. s.	° ′ ″
Sept.	14	F.	21 17 16.15	28 47 15.7
Nov.	1	S.	16.28	12.8
	15	E.	16.59	12.2
Mean . . .			21 17 16.340	28 47 13.57
Div., Flex., etc.			. .	— 0.30

35 Capricorni.

1872.			h. m. s.	° ′ ″
Nov.	15	E.	21 19 59.22	. . .
	20	E.	. .	111 44 54.9
	23	E.	59.15	55.4
Mean . . .			21 19 59.185	111 44 55.15
Div., Flex., etc.			. .	— 0.11

Anonymous.

1872.			h. m. s.	° ′ ″
Nov.	8	F.	21 20 33.91	111 43 33.0
Div., Flex., etc.			. .	— 0.11

Anonymous.

1872.			h. m. s.	° ′ ″
Oct.	31	F.	21 24 44.61	104 3 46.4
Nov.	1	S.	44.71	44.0
	7	E.	44.67	44.2
Mean . . .			21 24 44.663	104 3 44.87
Div., Flex., etc.			. .	— 0.29

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ε Capricorni.

1872.			h. m. s.	° ′ ″
Aug.	30	S.	21 29 54.74	110 2 17.4
Oct.	31	F.	54.65	. .
Nov.	1	S.	54.73	17.0
	8	F.	54.65	20.6
Mean . . .			21 29 54.692	110 2 18.33
Div., Flex., etc.			. .	— 0.17

B. A. C. 7524.

1872.			h. m. s.	° ′ ″
Nov.	7	E.	21 32 37.12	51 15 28.8
	8	F.	36.94	31.5
Mean . . .			21 32 37.030	51 15 30.15
Div., Flex., etc.			. .	— 0.30

γ Capricorni.

1872.			h. m. s.	° ′ ″
Aug.	30	S.	21 32 59.86	107 14 20.0
Nov.	20	E.	59.81	21.8
	23	E.	59.80	22.4
Mean . . .			21 32 59.823	107 14 21.40
Div., Flex., etc.			. .	— 0.23

B. A. C. 7528.

1872.			h. m. s.	° ′ ″
Aug.	17	Ha.	21 33 3.32	70 18 40.0
Nov.	15	E.	3.22	38.9
	27	S.	3.27	41.3
Mean . . .			21 33 3.270	70 18 40.07
Div., Flex., etc.			. .	— 0.14

κ Capricorni.

1872.			h. m. s.	° ′ ″
Sept.	3	S.	21 35 30.60	109 26 57.2
Nov.	1	S.	30.66	55.0
	7	E.	30.49	53.6
Mean . . .			21 35 30.583	109 26 55.27
Div., Flex., etc.			. .	— 0.18

c^1 Capricorni.

1872.			h. m. s.	° ′ ″
Oct.	31	F.	21 38 10.74	99 40 11.2
Nov.	8	F.	10.73	10.5
	15	E.	10.77	7.4
Mean . . .			21 38 10.747	99 40 9.70
Div., Flex., etc.			. .	— 0.41

λ Capricorni.

1872.			h. m. s.	° ′ ″
Aug.	30	S.	21 39 38.66	101 57 17.2
Nov.	7	E.	38.62	17.5
	20	E.	38.66	17.7
Mean . . .			21 39 38.647	101 57 17.47
Div., Flex., etc.			. .	— 0.23

δ Capricorni.

1872.			h. m. s.	° ′ ″
Sept.	3	S.	21 39 58.52	106 42 27.7
Nov.	15	E.	58.53	24.4
	23	E.	58.48	25.6
Mean . . .			21 39 58.510	106 42 25.90
Div., Flex., etc.			. .	— 0.24

B. A. C. 7602.

1872.			h. m. s.	° ′ ″
Oct.	31	F.	21 43 0.73	51 38 15.8
Nov.	1	S.	0.80	14.6
Mean . . .			21 43 0.765	51 38 15.20
Div., Flex., etc.			. .	— 0.32

B. A. C. 7620.

1872.			h. m. s.	° ′ ″
Aug.	30	S.	21 46 45.33	100 54 46.6
Oct.	31	F.	45.32	49.0
Mean . . .			21 46 45.325	100 54 47.80
Div., Flex., etc.			. .	— 0.34

29^1 Aquarii.

1872.			h. m. s.	° ′ ″
Aug.	26	S.	21 55 26.09	107 34 50.6
	30	S.	26.02	50.1
Sept.	6	S.	26.16	51.3
Mean . . .			21 55 26.090	107 34 50.67
Div., Flex., etc.			. .	— 0.22

29^2 Aquarii.

1872.			h. m. s.	° ′ ″
Aug.	26	S.	21 55 26.34	107 34 48.1
	30	S.	26.37	48.4
Sept.	6	S.	26.41	50.2
Mean . . .			21 55 26.373	107 34 48.90
Div., Flex., etc.			. .	— 0.22

Weisse 1361.

1872.			h. m. s.	° ′ ″
Oct.	31	F.	22 0 3.19	101 1 52.6
Nov.	1	S.	3.25	52.7
	4	F.	3.19	52.5
Mean . . .			22 0 3.210	101 1 52.60
Div., Flex., etc.			. .	— 0.33

Schjellerup 9030.

1872.			h. m. s.	° ′ ″
Nov.	4	F.	22 1 51.34	100 15 52.4
	7	E.	51.45	52.2
	8	F.	51.37	51.6
Mean . . .			22 1 51.387	100 15 52.07
Div., Flex., etc.			. .	— 0.38

Anonymous.

1872.			h. m. s.	° ′ ″
Oct.	29	S.	22 8 25.10	98 41 12.0
	31	F.	25.06	13.9
Nov.	4	F.	24.90	13.3
	7	E.	24.98	12.7
Mean . . .			22 8 25.010	98 41 12.98
Div., Flex., etc.			. .	— 0.45

42 Aquarii.

1872.			h. m. s.	° ′ ″
Aug.	26	S.	22 9 56.68	103 28 7.6
	30	S.	56.63	6.7
Sept.	3	S.	56.71	8.9
Nov.	12	F.	56.71	8.5
Mean . . .			23 9 56.682	103 28 7.92
Div., Flex., etc.			. .	— 0.30

Anonymous.

1872.			h. m. s.	° ′ ″
Oct.	31	F.	22 13 0.30	98 19 23.7
Nov.	4	F.	0.15	22.1
	7	E.	0.27	21.6
Mean . . .			22 13 0.240	98 19 22.47
Div., Flex., etc.			. .	— 0.46

ρ Aquarii.

1872.			h. m. s.	° ′ ″
Aug.	30	S.	22 13 27.79	98 27 46.2
Nov.	12	F.	27.80	48.2
	15	E.	27.69	45.4
Mean . . .			22 13 27.760	98 27 46.60
Div., Flex., etc.			. .	— 0.46

Anonymous.

1872.			h. m. s.	° ′ ″
Sept.	3	S.	22 15 32.04	98 6 38.8
Div., Flex., etc.			. .	— 0.46

Anonymous.

1872.			h. m. s.	° ′ ″
Sept.	3	S.	22 15 46.42	98 6 4.5
	6	S.	46.50	7.6
	14	F.	46.40	6.8
Mean . . .			22 15 46.440	98 6 6.30
Div., Flex., etc.			. .	— 0.46

Anonymous.

1872.			h. m. s.	° ′ ″
Oct.	31	F.	22 16 49.26	97 50 28.2
Nov.	1	S.	49.32	28.0
	4	F.	49.09	27.8
Mean . . .			22 16 49.223	97 50 28.00
Div., Flex., etc.			. .	— 0.46

51 Aquarii.

1872.			h. m. s.	° ′ ″
Aug.	30	S.	22 17 26.83	95 29 1.4
Nov.	7	E.	26.76	2.7
	8	F.	26.83	3.5
	12	F.	26.80	2.7
Mean . . .			22 17 26.805	95 29 2.58
Div., Flex., etc.			. .	— 0.53

50 Aquarii.

1872.			h. m. s.	° ′ ″
Aug.	26	S.	22 17 35.60	104 10 37.4
Nov.	15	E.	35.63	37.0
	23	E.	35.49	39.7
Mean . . .			22 17 35.573	104 10 38.03
Div., Flex., etc.			. .	— 0.29

Anonymous.

1872.			h. m. s.	° ′ ″
Sept.	3	S.	22 21 13.47	97 17 27.3
	6	S.	13.53	27.3
	14	F.	13.53	28.1
	19	F.	13.49	28.1
Mean . . .			22 21 13.505	97 17 27.70
Div., Flex., etc.			. .	— 0.46

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B. A. C. 7835.

1872.	h. m. s.	° ′ ″
Oct. 31 F.	22 23 10.78	103 34 12.1
Nov. 7 E.	10.76	11.8
8 F.	10.71	10.3
Mean . . .	22 23 10.750	103 34 11.40
Div., Flex., etc.	. .	— 0.29

Groombridge 3820, S. P.

1872.	h. m. s.	° ′ ″
Nov. 1 S.	. .	4 32 15.3
Div., Flex., etc.	. .	— 0.46

κ Aquarii.

1872.	h. m. s.	° ′ ″
Aug. 26 S.	22 31 7.60	94 53 16.6
30 S.	7.63	14.6
Sept. 6 S.	7.47	17.9
Mean . . .	22 31 7.567	94 53 16.37
Div., Flex., etc.	. .	— 0.56

67 Aquarii.

1872.	h. m. s.	° ′ ″
Aug. 26 S.	22 36 33.22	97 37 54.8
Sept. 6 S.	33.29	58.2
Oct. 21 S.	33.18	56.4
Mean . . .	22 36 33.230	97 37 56.47
Div., Flex., etc.	. .	— 0.46

B. A. C. 7937.

1872.	h. m. s.	° ′ ″
Aug. 30 S.	22 39 14.80	71 18 26.8
Nov. 12 F.	14.62	28.2
Mean . . .	22 39 14.710	71 18 27.50
Div., Flex., etc.	. .	— 0.09

70 Aquarii.

1872.	h. m. s.	° ′ ″
Sept. 3 S.	22 41 46.02	101 13 51.6
Nov. 1 S.	46.10	50.9
12 F.	45.95	53.5
Mean . . .	22 41 46.023	101 13 52.00
Div., Flex., etc.	. .	— 0.33

B. A. C. 7953.

1872.	h. m. s.	° ′ ″
Nov. 20 E.	22 42 18.73	32 11 30.3
Div., Flex., etc.	. .	— 0.28

τ^2 Aquarii.

1872.	h. m. s.	° ′ ″
Nov. 4 F.	22 42 48.73	104 16 3.2
12 F.	48.83	4.7
23 E.	48.78	3.1
Dec. 6 S.	48.99	. .
Mean . . .	22 42 48.832	104 16 3.67
Div., Flex., etc.	. .	— 0.28

β Pegasi.

1872.	h. m. s.	° ′ ″
Oct. 21 S.	22 57 33.80	62 36 40.1
Div., Flex., etc.	. .	— 0.30

φ Aquarii.

1872.	h. m. s.	° ′ ″
July 8 S.	23 7 41.58	96 44 18.3
Oct. 29 S.	41.50	19.7
31 F.	41.69	20.1
Mean . . .	23 7 41.590	96 44 19.37
Div., Flex., etc.	. .	— 0.47

O. Arg. S. 22712.

1872.	h. m. s.	° ′ ″
Nov. 4 F.	23 8 53.56	112 57 34.6
Div., Flex., etc.	. .	— 0.07

ψ^1 Aquarii.

1872.	h. m. s.	° ′ ″
Nov. 8 F.	23 9 11.20	99 47 10.2
12 F.	11.06	6.1
15 E.	11.14	3.7
Mean . . .	23 9 11.133	99 47 6.67
Div., Flex., etc.	. .	— 0.40

O. Arg. S. 22721.

1872.	h. m. s.	° ′ ″
Nov. 20 E.	23 9 48.62	111 52 55.5
Div., Flex., etc.	. .	— 0.16

ψ^2 Aquarii.

1872.	h. m. s.	° ′ ″
Nov. 12 F.	23 11 14.99	99 52 52.7
20 E.	14.97	52.3
27 E.	14.92	52.4
Mean . . .	23 11 14.960	99 52 52.47
Div., Flex., etc.	. .	— 0.40

Anonymous.

1872.	h. m. s.	° ′ ″
Nov. 7 E.	23 11 38.49	101 54 17.9
Div., Flex., etc.	. .	— 0.31

ψ^3 Aquarii.

1872.	h. m. s.	° ′ ″
Oct. 31 F.	23 12 18.18	100 18 37.1
Nov. 23 E.	18.14	36.6
27 E.	18.07	36.8
Mean . . .	23 12 18.130	100 18 36.83
Div., Flex., etc.	. .	— 0.37

96 Aquarii.

1872.	h. m. s.	° ′ ″
July 8 S.	23 12 45.80	95 49 23.4
Nov. 15 E.	45.70	23.5
27 E.	45.64	24.7
Mean . . .	23 12 45.713	95 49 23.87
Div., Flex., etc.	. .	— 0.50

κ Piscium.

1872.	h. m. s.	° ′ ″
July 8 S.	23 20 22.35	89 26 40.1
Nov. 12 F.	22.27	41.4
15 E.	22.35	40.7
Mean . . .	23 20 22.323	89 26 40.73
Div., Flex., etc.	. .	— 0.39

9 Piscium.

1872.	h. m. s.	° ′ ″
Nov. 4 F.	23 20 41.25	89 34 49.2
12 F.	41.42	53.1
23 E.	41.41	52.4
Mean . . .	23 20 41.360	89 34 51.57
Div., Flex., etc.	. .	— 0.39

16 Piscium.

1872.	h. m. s.	° ′ ″
July 8 S.	23 29 51.54	88 36 26.1
Nov. 4 F.	51.30	27.9
8 F.	51.41	28.5
12 F.	51.44	29.0
Mean . . .	23 29 51.422	88 36 27.88
Div., Flex., etc.	. .	— 0.37

λ Piscium.

1872.	h. m. s.	° ′ ″
July 8 S.	23 35 30.98	88 55 26.8
Nov. 4 F.	30.91	28.5
12 F.	30.88	29.2
Mean . . .	23 35 30.923	88 55 28.17
Div., Flex., etc.	. .	— 0.37

20 Piscium.

1872.	h. m. s.	° ′ ″
Nov. 8 F.	23 41 21.73	93 28 23.8
12 F.	21.76	22.7
Mean . . .	23 41 21.745	93 28 23.25
Div., Flex., etc.	. .	— 0.61

21 Piscium.

1872.	h. m. s.	° ′ ″
July 8 S.	23 42 54.26	89 38 3.3
Nov. 4 F.	54.12	3.2
8 F.	54.17	4.3
15 E.	54.27	1.8
Mean . . .	23 42 54.205	89 38 3.15
Div., Flex., etc.	. .	— 0.39

27 Piscium.

1872.	h. m. s.	° ′ ″
July 8 S.	23 52 7.26	94 15 57.5
12 F.	7.19	59.7
15 E.	7.23	57.0
Mean . . .	23 52 7.227	94 15 58.07
Div., Flex., etc.	. .	— 0.60

29 Piscium.

1872.	h. m. s.	° ′ ″
Nov. 7 E.	23 55 15.90	93 44 23.4
15 E.	15.87	22.5
23 E.	15.83	24.3
Mean . . .	23 55 15.867	93 44 23.40
Div., Flex., etc.	. .	— 0.61

30 Piscium.

1872.	h. m. s.	° ′ ″
Nov. 12 F.	23 55 23.69	95 43 31.4
15 F.	23.69	32.7
27 E.	23.68	32.1
Mean . . .	23 55 23.687	95 43 32.07
Div., Flex., etc.	. .	— 0.51

33 Piscium.

1872.	h. m. s.	° ′ ″
July 8 S.	23 58 47.06	96 25 22.7
Nov. 4 F.	46.84	21.9
7 E.	47.04	24.0
12 F.	47.01	24.7
Mean . . .	23 58 46.988	96 25 23.32
Div., Flex., etc.	. .	— 0.48

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CATALOGUE OF STARS

OBSERVED WITH

THE TRANSIT CIRCLE.

1872.

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CATALOGUE OF STARS

OBSERVED IN

THE YEAR 1872

WITH

THE TRANSIT CIRCLE.

[NOTE.—The names of fundamental stars contained in the American Ephemeris are printed in SMALL CAPITALS. The precessions for these include proper motions. Stars designated simply by hour and number (*e. g.*, XI, 1) are from a list of zero-stars, selected by Professor Hall, to be used in a revision of the positions of the Washington Zones. Estimates of magnitudes marked with an asterisk were derived from observation.]

Number.	Name of Star.	Magnitude.	Mean Right Ascension, 1872.0.	Annual Precession, 1872.	Mean year.	No. of obs.	Mean N. P. Distance, 1872.0.	Annual Precession, 1872.	Mean year.	No. of obs.
			h. m. s.	s.			° ′ ″	″		
1	α ANDROMEDÆ . . .	2.0	0 1 46.47	+ 3.088	2.4	13	61 36 57.8	+ 19.90	2.4	11
2	γ PEGASI	2.7	6 38.75	3.083	2.5	12	75 31 41.5	20.05	2.5	12
3	44 Piscium	6.0	18 50.42	3.075	2.8	4	88 46 9.4	19.99	2.9	3
4	10 Ceti	6.0	20 3.58	3.071	2.9	3	90 45 31.4	19.98	2.9	3
5	51[1] Piscium	6.5	25 47.51	3.089	2.9	3	83 45 6.2	19.93	2.9	3
6	δ Andromedæ . . .	3.0	0 32 29.24	+ 3.126	2.1	1	. . . .	. .	. .	.
7	α CASSIOPEÆ	Var.	33 15.42	3.365	2.5	2	34 9 55.5	+ 19.80	2.5	2
8	β CETI	2.0	37 9.86	3.013	2.5	10	108 41 22.9	19.83	2.5	9
9	21 CASSIOPEÆ, S. P. . .	6.0	37 14.40	3.829	2.3	4	15 42 44.6	19.73	2.3	4
10	62 Piscium	6.0	41 39.08	3.100	2.9	3	83 23 57.2	19.73	2.9	3
11	B. A. C. 221 . . .	6.0	0 41 40.26	+ 3.102	2.9	3	85 22 41.2	+ 19.73	2.9	3
12	δ Piscium	4.5	42 2.62	3.101	2.3	2	83 6 43.8	19.72	2.3	2
13	ε PISCIUM	4.0	56 18.12	3.110	2.7	11	82 47 58.5	19.48	2.7	10
14	e Piscium	5.5	1 1 46.66	3.103	2.9	3	85 1 42.2	19.33	2.9	3
15	33 Ceti	6.0	3 58.43	3.077	2.9	3	88 14 10.3	19.28	2.9	3
16	ζ^1 Piscium	4.5	1 7 2.72	+ 3.119	2.8	3	83 6 7.9	+ 19.20	2.8	3
17	f Piscium	6.0	11 11.99	3.093	2.9	3	87 3 37.3	19.10	2.9	3
18	POLARIS	2.0	11 57.46	20.424	2.5	34	1 22 22.2	19.08	2.5	42
19	POLARIS, S. P. . . .	2.0	11 57.18	20.424	2.4	26	1 22 23.2	19.08	2.5	51
20	θ^1 CETI	3.0	17 37.56	2.998	2.7	11	98 50 40.7	18.72	2.7	8
21	94 Piscium	5.0	1 19 47.10	+ 3.226	2.9	3	71 25 24.8	+ 18.85	2.9	3
22	38 CASSIOPEÆ, S. P. . .	6.0	21 44.60	4.353	2.3	1	20 23 41.6	18.71	2.3	1
23	η PISCIUM	3.7	24 38.22	3.200	2.8	13	75 18 53.7	18.72	2.8	13
24	101 Piscium	6.0	28 55.94	3.199	2.9	5	75 59 37.2	18.57	2.9	5
25	π Piscium	6.0	30 18.92	3.177	2.7	4	78 30 49.4	18.52	2.9	3

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Number.	Name of Star.	Magnitude.	Mean Right Ascension, 1872.0.	Annual Precession, 1872.	Mean year.	No. of obs.	Mean N. P. Distance, 1872.0.	Annual Precession, 1872.	Mean year.	No. of obs.
			h. m. s.	s.			° ′ ″	″		
26	ν Piscium	4.5	1 34 46.36	+ 3.118	2.7	4	85 9 39.4	+ 18.37	2.7	4
27	o PISCIUM	4.0	38 38.19	3.162	2.6	10	81 29 14.6	18.26	2.6	10
28	β ARIETIS	2.7	47 34.34	3.301	2.5	20	69 49 7.0	17.79	2.6	17
29	50 CASSIOPEÆ	4.0	52 32.98	4.978	2.9	1	18 11 59.1	17.68	2.9	1
30	50 CASSIOPEÆ, S. P. . .	4.0	52 33.01	4.978	2.4	2	18 11 58.5	17.68	2.4	2
31	γ Andromedæ . . .	3.0	1 56 2.90	+ 3.650	2.5	1	48 17 5.4	+ 17.54	2.5	1
32	a ARIETIS	2.0	59 57.68	3.368	2.4	23	67 8 38.3	17.24	2.4	22
33	ξ^1 CETI	4.3	2 6 13.14	3.169	2.0	2	81 45 16.7	17.08	2.0	1
34	ξ Arietis	5.5	17 57.50	3.206	2.3	3	79 58 12.7	16.53	2.3	3
35	ι CASSIOPEÆ	4.0	18 32.18	4.839	2.0	1	23 10 30.2	16.48	2.0	1
36	ι CASSIOPEÆ, S. P. . .	4.0	2 18 33.06	+ 4.839	2.4	3	23 10 29.7	+ 16.48	2.4	3
37	ξ^2 Ceti	4.0	21 21.35	3.180	2.6	3	82 6 53.5	16.36	2.6	3
38	μ Arietis	5.5	35 9.18	3.368	2.6	3	70 32 6.8	15.63	2.6	3
39	B. A. C. 830 . . .	6.0	35 35.59	3.223	2.9	3	79 48 20.5	15.62	2.9	3
40	γ CETI	3.3	36 40.21	3.102	2.0	2	87 18 18.8	15.40	2.0	2
41	38 Arietis	5.0	2 37 59.29	+ 3.151	2.6	3	78 5 40.1	+ 15.48	2.6	3
42	μ Ceti	4.0	38 1.56	3.216	2.9	3	80 25 39.1	15.48	2.9	3
43	40 Arietis	6.0	41 21.74	3.349	2.9	3	72 15 3.2	15.29	2.9	3
44	σ Arietis	6.0	44 25.73	3.300	2.6	3	75 26 48.3	15.11	2.6	3
45	ρ^3 Arietis	6.0	49 12.81	3.350	2.6	3	72 29 19.5	14.84	2.6	3
46	47 Arietis	6.0	2 50 45.81	+ 3.405	2.9	3	69 50 47.0	+ 14.74	2.9	3
47	ε^1 Arietis	4.5	51 53.82	3.419	2.9	3	69 10 22.8	14.68	2.9	3
48	a CETI	2.5	55 35.41	3.129	2.4	10	86 24 49.2	14.37	2.4	10
49	53 Arietis	6.0	3 0 13.50	3.368	2.9	3	72 36 56.0	14.17	2.9	3
50	48 CEPHEI	6.0	4 10.19	7.345	2.0	2	12 44 22.7	13.86	2.0	2
51	48 CEPHEI, S. P. . . .	6.0	3 4 10.22	+ 7.345	2.5	3	12 44 21.3	+ 13.86	2.5	3
52	δ Arietis	4.5	4 18.82	3.408	2.6	3	70 45 33.8	13.91	2.6	3
53	B. A. C. 987 . . .	6.5	4 20.30	3.287	2.9	3	77 26 19.8	13.91	2.9	3
54	ζ ARIETIS	4.5	7 32.82	3.437	2.5	7	69 25 53.5	13.65	2.6	6
55	τ^1 Arietis	5.0	13 50.44	3.450	2.5	4	69 18 58.2	13.30	2.5	4
56	a PERSEI	2.0	3 15 11.68	+ 4.248	2.4	8	40 35 48.0	+ 13.17	2.4	8
57	τ^2 Arietis	6.0	15 23.40	3.444	2.5	2	69 43 4.6	13.20	2.5	2
58	65 Arietis	6.0	17 3.47	3.448	2.9	3	69 39 8.3	13.09	2.9	3
59	f Tauri	4.0	23 48.55	3.302	2.3	3	77 30 14.0	12.63	2.3	3
60	9 Tauri	6.0	29 26.64	3.517	2.3	3	67 12 50.1	12.25	2.3	3
61	δ PERSEI	3.0	3 33 49.22	+ 4.239	2.2	4	42 37 26.2	+ 11.89	2.2	4
62	13 Tauri	6.5	34 56.21	3.449	2.3	3	70 42 41.9	11.86	2.3	3
63	g Pleiadum	5.5	37 11.88	3.553	2.9	3	66 6 54.4	11.70	2.9	3
64	b Pleiadum	4.5	37 16.62	3.549	2.9	3	66 17 27.4	11.70	2.9	3
65	m Pleiadum	7.0	37 31.75	3.566	3.0	3	65 34 52.1	11.68	3.0	3

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			h. m. s.	s.			° ′ ″	″		
66	*e* Pleiadum	5.0	3 37 35.44	+ 3.557	3.0	3	65 56 10.7	+ 11.68	3.0	3
67	*c* Pleiadum	5.0	38 12.77	3.556	2.9	3	66 2 3.1	11.63	2.9	3
68	*d* Pleiadum	5.0	38 43.90	3.546	2.9	3	66 27 9.0	11.59	2.9	3
69	η TAURI	3.0	39 52.75	3.554	2.5	12	66 17 33.2	11.46	2.6	9
70	26 Tauri	7.0	41 20.86	3.549	2.9	1	66 32 10.6	11.41	2.9	1
71	*f* Pleiadum	4.5	3 41 33.24	+ 3.554	2.9	3	66 20 23.0	+ 11.39	2.9	2
72	*h* Pleiadum	5.5	41 34.47	3.556	2.6	3	66 15 24.4	11.39	2.6	3
73	ζ PERSEI	3.0	46 5.31	3.756	2.4	1	58 29 55.0	11.04	2.4	1
74	33 Tauri	6.0	49 28.63	3.545	2.3	3	67 11 53.1	10.82	2.3	3
75	γ^1 ERIDANI	3.0	52 3.52	2.797	2.7	8	103 52 28.0	10.53	2.7	8
76	A^1 Tauri	4.5	3 57 7.86	+ 3.530	2.4	4	68 16 11.1	+ 10.25	2.6	3
77	B. A. C. 1272 . . .	6.0	4 0 39.76	3.427	2.1	3	73 0 15.6	9.98	2.1	3
78	48 Tauri	6.0	8 30.40	3.390	2.6	3	74 55 17.6	9.38	2.6	3
78	ω^2 Tauri	5.5	9 45.70	3.510	2.5	4	69 44 19.0	9.28	2.5	4
80	γ TAURI	4.0	12 30.66	3.407	2.8	9	74 41 0.1	9.06	2.8	7
81	58 Tauri	6.0	4 13 20.88	+ 3.388	2.9	3	75 12 48.2	+ 9.00	2.9	3
82	δ^1 Tauri	4.0	15 33.30	3.445	2.6	3	72 45 35.5	8.83	2.6	3
83	63 Tauri	6.0	16 4.55	3.428	2.6	3	73 31 25.8	8.79	2.6	3
84	δ^2 Tauri	6.0	16 43.13	3.443	2.6	3	72 51 17.1	8.74	2.6	3
85	κ^1 Tauri	5.5	17 44.58	3.559	2.9	3	68 0 4.6	8.65	2.9	3
86	κ^2 Tauri	6.5	4 17 47.67	+ 3.557	3.0	3	68 5 42.4	+ 8.65	3.0	3
87	δ^3 Tauri	5.0	18 5.12	3.456	3.0	3	72 22 0.5	8.63	3.0	2
88	v^1 Tauri	4.5	18 39.02	3.573	3.0	3	67 28 47.6	8.56	3.0	3
89	71 Tauri	6.0	19 3.21	3.404	3.0	3	74 40 28.6	8.55	3.0	2
90	v^2 Tauri	6.0	19 38.27	3.579	3.0	3	67 17 40.8	8.50	3.0	3
91	75 Tauri	6.0	4 21 7.42	+ 3.422	3.0	2	73 55 43.6	+ 8.39	3.0	3
92	ε TAURI	3.7	21 8.67	3.495	2.5	7	71 6 20.4	8.39	2.5	7
93	θ^1 Tauri	4.5	21 15.95	3.414	3.0	2	74 19 26.5	8.38	3.0	2
94	θ^2 Tauri	4.5	21 21.36	3.411	2.9	3	74 24 54.1	8.37	2.9	3
95	80 Tauri	6.0	22 50.82	3.407	2.9	3	74 38 38.5	8.25	2.9	3
96	B. A. C. 1391 . . .	5.0	4 23 14.10	+ 3.420	2.9	3	74 5 11.9	+ 8.22	2.9	4
97	81 Tauri	5.5	23 20.92	3.408	2.9	3	74 35 18.5	8.21	2.9	3
98	B. A. C. 1394 . . .	7.0	24 27.38	3.419	2.9	3	74 7 52.0	8.12	2.9	4
99	85 Tauri	6.0	24 33.22	3.413	2.9	3	74 25 30.4	8.11	2.9	3
100	α TAURI	1.0	28 34.62	3.436	2.5	33	73 45 1.4	7.62	2.5	33
101	D. M. 889	8.9	4 32 46.26	+ 3.894	2.6	2	56 29 29.1	+ 7.45	2.6	2
102	τ Tauri	4.5	34 33.88	3.593	2.6	3	67 17 26.8	7.31	2.6	3
103	9 CAMELOPARDALIS, S. P.	4.0	41 20.28	5.913	2.6	2	23 52 42.2	6.76	2.6	1
104	*i* Tauri	5.5	43 53.25	3.498	2.3	5	71 22 48.1	6.54	2.2	4
105	ι AURIGÆ	3.0	48 39.59	3.897	2.5	13	57 2 20.2	6.13	2.5	13

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Number.	Name of Star.	Magnitude.	Mean Right Ascension, 1872.0.	Annual Precession, 1872.	Mean year.	No. of obs.	Mean N. P. Distance, 1872.0.	Annual Precession, 1872.	Mean year.	No. of obs.
			h. m. s.	s.			° ′ ″	″		
106	99 Tauri	6.5	4 50 2.81	+ 3.633	2.3	3	66 15 14.6	+ 6.03	2.3	3
107	*k* Tauri	5.5	50 19.52	3.663	2.9	3	65 8 58.2	6.00	2.9	3
108	*ι* Tauri	5.0	55 26.74	3.576	2.9	3	68 35 42.8	5.58	2.9	3
109	11 Orionis	5.0	57 15.34	3.425	2.5	8	74 46 35.4	5.41	2.5	6
110	*m* Tauri	5.5	59 53.17	3.504	2.9	3	71 31 44.4	5.20	2.9	3
111	*l* Tauri	5.5	5 0 14.00	+ 3.549	2.9	3	69 45 8.4	+ 5.17	2.9	3
112	105 Tauri	6.0	0 16.32	3.582	3.0	3	68 28 1.3	5.17	3.0	3
113	*α* Aurigæ	1.0	7 14.14	4.422	2.3	9	44 8 5 4	4.15	2.3	8
114	*β* Orionis	1.0	8 23.21	2.881	2.5	22	98 21 5.0	4.48	2.5	21
115	*n* Tauri	6.0	11 35.17	3.599	2.9	3	68 2 17.5	4.21	2.9	2
116	111 Tauri	6.0	5 16 57.32	+ 3.480	2.9	4	72 44 16.2	+ 3.75	2.9	4
117	*β* Tauri	2.0	18 11.96	3.788	2.4	18	61 30 11.7	3.46	2.4	18
118	115 Tauri	5.5	19 42.16	3.496	2.9	3	72 8 59.6	3.51	2.9	3
119	*o* Tauri	6.0	19 56.91	3.600	3.0	3	68 10 28.7	3.49	3.0	3
120	117 Tauri	6.0	20 35.79	3.478	2.9	3	72 52 12.1	3.43	2.9	3
121	Groombridge 966 . .	6.3	5 22 37.72	+ 7.988	2.0	1	15 2 47.0	+ 3.25	2.0	1
122	119 Tauri	5.5	24 42.46	3.540	2.9	3	71 30 11.2	3.08	2.9	3
123	*δ* Orionis	2.0	25 28.07	3.064	2.4	12	90 23 45.4	3.00	2.4	11
124	120 Tauri	6.0	26 1.57	3.513	2.9	3	71 33 11.7	2.96	2.9	3
125	*α* Leporis	3.0	27 5.18	2.646	2.0	1	107 54 56.1	2.90	2.0	1
126	121 Tauri	6.0	5 27 38.09	+ 3.660	2.9	3	66 2 52.9	+ 2.82	2.9	3
127	*ε* Orionis	2.0	29 43.22	3.042	2.4	14	91 17 8.9	2.65	2.4	14
128	*ζ* Tauri	3.5	29 59.74	3.583	2.4	3	68 56 17.6	2.62	2.4	3
129	125 Tauri	6.0	31 48.23	3.714	2.9	3	64 10 38.1	2.46	2.9	3
130	*α* Columbæ	2.0	35 0.90	2.173	2.3	3	128 8 38.7	2.16	2.3	3
131	130 Tauri	6.0	5 39 58.42	+ 3.497	2.6	3	72 19 16.0	+ 1.76	2.6	3
132	132 Tauri	5.5	41 9.64	3.680	2.9	3	65 28 40.4	1.65	2.9	3
133	136 Tauri	5.0	45 16.96	3.769	2.1	3	62 25 14.5	1.29	2.1	3
134	χ^2 Orionis	6.0	47 22.05	3.551	2.7	3	70 16 38.8	1.10	2.7	3
135	*α* Orionis	Var.	48 14.54	3.247	2.4	16	82 37 8.9	1.05	2.4	15
136	139 Tauri	5.5	5 50 3.11	+ 3.722	2.9	3	64 3 51.6	+ 0.87	2.9	3
137	141 Tauri	6.0	53 57.86	3.623	2.6	5	67 36 18.6	0.53	2.5	4
138	χ^3 Orionis	5.0	55 53.86	3.550	2.1	1	70 18 35.1	0.36	2.1	1
139	χ^4 Orionis	5.0	56 19.11	3.562	2.9	1	69 51 39.6	0.32	2.9	1
140	1 Geminorum. . . .	5.0	56 20.37	3.647	2.9	3	66 43 54.6	+ 0.32	2.9	3
141	3 Geminorum. . . .	6.0	6 1 57.50	+ 3.643	2.2	2	66 52 6.0	− 0.17	2.2	2
142	68 Orionis	6.0	4 26.42	3.554	3.0	2	70 10 59.4	0.39	3.0	1
143	6 Geminorum. . . .	6.0	4 33.52	3.638	3.0	3	67 3 53.3	0.40	3.0	3
144	22 Camelopardalis . .	4.7	4 44.41	6.619	2.0	2	20 38 23.0	0.52	2.0	2
145	*η* Geminorum. . . .	3.5	7 8.97	3.626	3.0	2	67 27 30.1	0.63	3.0	2

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			h. m. s.	s.			° ′ ″	″		
146	71 Orionis	5.5	6 7 18.96	+ 3.537	2.7	3	70 48 8.1	— 0.64	2.7	3
147	μ Geminorum. . . .	3.0	15 12.96	3.633	2.5	5	67 25 23.3	1.44	2.6	4
148	ν Geminorum. . . .	4.5	21 21.79	3.564	2.2	3	69 42 32.7	1.87	2.2	3
149	γ Geminorum. . . .	2.3	30 19.00	3.469	2.4	19	73 29 37.9	2.67	2.4	19
150	26 Geminorum. . . .	5.5	34 57.06	3.495	2.2	2	72 13 55.0	3.05	2.2	3
151	ε Geminorum. . . .	3.5	6 36 3.34	+ 3.695	2.4	3	64 44 40.8	— 3.14	2.4	4
152	α Canis Majoris. . .	1.0	39 30.39	2.645	2.5	10	106 32 32.0	4.65	2.4	11
153	51 Cephei	5.0	39 43.64	30.297	2.2	9	2 45 44.2	3.41	2.2	8
154	51 Cephei, S. P. . . .	5.0	39 43.64	30.297	2.4	10	2 45 44.2	3.41	2.4	12
155	ε Canis Majoris. . .	1.7	53 35.77	2.358	2.2	2	118 47 58.9	4.64	2.2	2
156	ω Geminorum. . . .	6.0	6 54 36.70	+ 3.661	2.2	4	65 36 16.7	— 4.73	2.2	4
157	ζ Geminorum. . . .	4.0	56 30.98	3.563	2.2	4	69 14 39.3	4.90	2.2	4
158	δ Canis Majoris. . .	2.0	7 3 11.20	2.440	2.2	4	116 11 29.8	5.42	2.2	3
159	47 Geminorum. . . .	6.0	3 26.73	3.729	2.1	3	62 56 8.6	5.49	2.1	3
160	48 Geminorum. . . .	6.0	4 39.69	3.653	2.1	3	65 39 35.0	5.59	2.1	3
161	52 Geminorum. . . .	6.0	7 6 52.18	+ 3.672	2.1	2	64 53 42.2	— 5.77	2.1	2
162	λ Geminorum. . . .	3.5	10 44.16	3.456	2.2	3	73 13 51.2	6.09	2.2	3
163	δ Geminorum. . . .	3.3	12 28.58	3.591	2.2	16	67 47 3.3	6.23	2.2	15
164	56 Geminorum. . . .	5.5	14 23.59	3.550	2.2	3	69 19 1.2	6.40	2.2	3
165	Piazzi VII, 67 . . .	6.0	17 32.47	6.313	2.2	1	21 16 36.2	6.73	2.2	1
166	Piazzi VII, 67, S. P. .	6.0	7 17 32.30	+ 6.313	2.4	2	21 16 38.6	— 6.73	2.2	1
167	Anonymous . . .	8.0	18 46.20	3.206	2.2	3	43 13 21.6	6.76	2.2	3
168	63 Geminorum. . . .	5.5	20 8.40	3.572	2.1	3	68 17 43.1	6.87	2.1	3
169	Anonymous . . .	9.5	25 56.65	4.408	2.1	3	42 57 25.2	7.35	2.1	3
170	68 Geminorum. . . .	5.5	26 18.06	3.431	2.2	3	73 53 59.5	7.38	2.2	3
171	α^2 Geminorum. . . .	1.7	7 26 25.78	+ 3.839	2.4	25	57 49 59.5	— 7.46	2.5	19
172	Anonymous . . .	8.5	31 38.20	4.391	2.1	3	43 1 55.5	7.81	2.1	3
173	f Geminorum. . . .	6.0	32 4.91	3.471	2.2	3	72 2 9.9	7.84	2.2	3
174	α Canis Minoris. . .	1.0	32 35.98	3.146	2.5	26	84 26 55.9	8.93	2.5	23
175	c Geminorum. . . .	6.0	36 18.31	3.670	2.2	3	63 54 48.2	8.18	2.2	3
176	κ Geminorum. . . .	3.5	7 36 43.03	+ 3.632	2.2	3	65 20 50.4	— 8.21	2.2	3
177	β Geminorum. . . .	1.3	37 28.82	3.682	2.4	35	61 39 59.5	8.32	2.4	30
178	g Geminorum. . . .	5.5	38 42.63	3.486	2.2	3	71 10 47.2	8.37	2.2	3
179	ϕ Geminorum. . . .	5.0	45 39.63	3.684	2.2	18	62 54 18.4	8.94	2.2	16
180	ω^1 Cancri	6.0	53 11.08	3.640	2.2	3	64 15 31.8	9.51	2.2	3
181	5 Cancri	6.0	7 54 12.45	+ 3.427	2.2	3	73 11 37.5	— 9.59	2.2	3
182	3 Ursæ Majoris, S. P. .	6.0	8 0 2.53	- 6.070	2.4	1	31 9 8.2	10.04	2.4	1
183	μ^2 Cancri	5.0	0 13.75	3.538	2.2	3	68 2 54.9	10.05	2.2	3
184	15 Argus	3.0	2 5.57	2.556	2.2	3	113 56 12.5	10.11	2.2	3
185	ζ^1 Cancri	4.5	4 52.13	3.444	2.2	3	71 58 5.5	10.39	2.2	2

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			h. m. s.	s.			° ′ ″	″		
186	ζ^2 Cancri	7.5	8 4 52.39	+ 3.444	2.2	3	71 58 9.5	— 10.39	2.2	2
187	χ Cancri	6.0	12 17.08	3.659	2.2	3	62 22 11.5	10.94	2.2	3
188	λ Cancri	6.0	12 55.38	3.580	2.2	2	65 34 34.9	10.99	2.2	2
189	d^1 Cancri	6.0	16 1.95	3.448	2.2	3	71 15 30.2	11.22	2.2	3
190	d^2 Cancri	6.0	18 34.99	3.418	2.2	3	72 32 2.3	11.40	2.2	3
191	27 Cancri	6.5	8 19 39.08	+ 3.327	2.2	2	76 55 29.5	— 11.48	2.2	2
192	29 Cancri	6.0	21 28.69	3.357	2.2	3	75 22 2.3	11.61	2.2	3
193	θ Cancri	6.0	24 17.69	3.434	2.2	4	71 28 28.9	11.81	2.2	4
194	γ Cancri	4.5	35 52.52	3.490	2.2	4	68 4 22.0	12.61	2.2	4
195	A^1 Cancri	6.0	36 8.97	3.315	2.2	3	76 51 43.5	12.63	2.2	3
196	δ Cancri	4.0	8 37 24.58	+ 3.421	2.2	3	71 22 36.7	— 12.72	2.2	3
197	A^2 Cancri	6.0	39 54.92	3.301	2.2	3	77 25 18.2	12.89	2.2	3
198	ε Hydræ	3.3	39 59.78	3.184	2.2	8	83 6 47.2	12.91	2.2	8
199	60 Cancri	6.0	48 56.12	3.280	2.2	4	77 53 11.1	13.48	2.2	4
200	o^1 Cancri	6.0	50 6.50	3.351	2.2	3	74 11 16.7	13.56	2.2	3
201	ι Ursæ Majoris. . .	3.0	8 50 26.00	+ 4.141	2.3	1	41 27 26.9	— 13.84	2.3	1
202	o^2 Cancri	6.0	50 26.11	3.356	2.2	3	73 55 44.3	13.58	2.2	3
203	α Cancri	4.0	51 29.12	3.287	2.2	3	77 38 53.3	13.65	2.2	3
204	κ Cancri	5.0	9 0 48.78	3.255	2.2	13	78 49 5.1	14.21	2.2	12
205	83 Cancri	6.0	11 50.11	3.367	2.2	6	71 45 13.0	14.00	2.2	6
206	1 Draconis	4.3	9 18 38.24	+ 9.137	2.2	3	8 6 40.6	— 15.28	2.2	3
207	1 Draconis, S. P. . .	4.3	18 38.38	9.137	2.6	1	. . . .	. .	. .	.
208	α Hydræ	2.0	21 17.82	2.950	2.3	10	98 6 17.4	15.39	2.3	9
209	ω Leonis	6.0	21 36.13	3.216	2.2	3	80 23 14.1	15.45	2.2	3
210	θ Ursæ Majoris. . .	3.0	24 17.10	4.051	2.8	2	37 44 27.8	16.15	2.8	2
211	ξ Leonis	6.0	9 25 2.72	+ 3.248	2.2	3	78 8 4.0	— 15.64	2.2	3
212	h Leonis	6.0	25 5.80	3.224	2.2	3	79 43 16.0	15.65	2.2	3
213	o Leonis	3.5	34 19.07	3.219	2.2	3	79 31 36.0	16.14	2.2	3
214	ε Leonis	3.0	38 34.91	3.420	2.4	16	65 38 14.8	16.36	2.4	15
215	18 Leonis	6.0	39 29.50	3.241	2.2	3	77 36 5.9	16.40	2.2	3
216	B. A. C. 3345 . . .	6.0	9 40 40.36	+ 3.235	2.3	4	77 58 42.7	— 16.46	2.3	4
217	μ Leonis	4.0	45 28.78	3.425	2.3	13	63 23 29.0	16.74	2.3	13
218	ν Leonis	5.0	51 20.13	3.237	2.3	3	76 56 44.2	16.98	2.3	3
219	π Leonis	5.0	53 26.94	3.179	2.2	3	81 20 33.1	17.08	2.2	3
220	η Leonis	3.5	10 0 21.12	3.281	2.2	2	72 36 49.8	17.39	2.2	2
221	α Leonis	1.3	10 1 33.18	+ 3.203	2.5	26	77 24 28.8	— 17.41	2.5	26
222	16 Sextantis	6.0	2 32.42	3.150	2.3	4	83 12 9.8	17.48	2.3	4
223	32 Ursæ Majoris. . .	6.0	8 42.72	4.441	2.2	2	24 15 16.7	17.77	2.2	2
224	32 Ursæ Majoris, S. P. .	6.0	8 42.72	4.441	2.9	1	24 15 17.1	17.77	2.9	1
225	ζ Leonis	4.5	9 34.19	3.349	2.9	3	65 56 44.6	17.78	2.9	2

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			h. m. s.	s.			° ′ ″	″		
226	Weisse 138	7.0	10 9 48.36	+ 3.231	2.3	4	75 38 2.8	— 17.78	2.3	4
227	Groombridge 1620 . .	5.9	10 40.18	9.950	2.3	2	5 6 1.2	17.82	2.3	2
228	Weisse 187	9.0	12 29.04	3.208	2.3	3	77 22 32.6	17.89	2.3	3
229	γ^1 Leonis	2.0	12 54.74	3.317	2.6	27	69 30 43.1	18.02	2.6	23
230	42 Leonis	6.0	14 57.16	3.238	2.3	3	74 22 47.9	17.99	2.3	3
231	Weisse 339	8.0	10 20 43.56	+ 3.150	2.3	3	82 7 55.9	— 18.21	2.3	3
232	45 Leonis	6.0	20 53.24	3.175	2.2	3	79 35 9.4	18.21	2.2	3
233	B. A. C. 3579 . . .	6.0	21 57.86	3.221	2.3	3	75 0 10.8	18.25	2.3	3
234	9 Draconis, S. P. . .	4.7	24 9.09	5.310	2.9	1	13 37 44.8	18.36	2.9	1
235	i Leonis	6.0	25 21.57	3.214	2.3	3	75 12 23.0	18.37	2.3	3
236	ρ Leonis	4.0	10 26 4.20	+ 3.166	2.3	3	80 2 9.5	— 18.39	2.4	4
237	49 Leonis	6.0	28 19.22	3.158	2.2	3	80 41 20.0	18.47	2.2	3
238	Weisse 513	9.0	29 51.45	3.062	2.3	3	91 6 44.6	18.53	2.3	3
239	Weisse 543	9.0	31 12.36	2.788	2.3	3	93 13 29.0	18.57	2.3	3
240	Weisse 551	8.0*	31 39.38	2.957	2.3	3	91 18 34.6	18.59	2.3	3
241	Anonymous . . .	9.0*	10 31 44.45	+ 2.970	2.2	2	91 9 34.7	— 18.59	2.2	2
242	Anonymous . . .	. .	31 59.08	3.063	2.3	1	91 3 32.5	18.60	2.3	1
243	Weisse 568	8.2*	32 41.71	3.027	2.3	4	95 13 0.5	18.62	2.3	4
244	37 Sextantis	6.0	39 25.79	3.129	2.2	3	82 57 9.8	18.83	2.2	3
245	Weisse 693	7.5	40 4.79	2.968	2.3	3	102 47 14.5	18.85	2.3	3
246	l Leonis	5.0	10 42 31.69	+ 3.159	2.3	13	78 46 41.4	— 18.92	2.3	13
247	Anonymous . . .	. .	46 23.48	2.992	2.3	3	100 44 46.4	19.03	2.3	3
248	Anonymous . . .	. .	46 40.52	2.947	2.3	3	106 36 0.5	19.04	2.3	3
249	X, 17.	6.0	48 1.74	2.775	2.3	1	125 46 37.6	19.08	2.3	1
250	55 Leonis	6.0	49 7.20	3.082	2.2	3	88 34 52.0	19.11	2.2	3
251	d Leonis	5.0	10 53 56.96	+ 3.101	2.3	4	85 41 45.4	— 19.23	2.3	4
252	a Ursæ Majoris. . .	2.0	55 48.49	3.761	2.5	9	27 33 30.3	19.36	2.5	9
253	p^2 Leonis	6.0	57 3.45	3.077	2.3	2	89 18 44.3	19.31	2.3	2
254	χ Leonis	4.5	58 24.81	3.122	2.3	4	81 58 20.2	19.34	2.3	4
255	Anonymous . . .	9.4	11 3 29.36	3.129	2.2	2	80 12 0.4	19.45	2.2	2
256	XI, 1.	8.0	11 3 50.36	+ 2.922	2.3	1	114 54 45.2	— 19.46	2.3	1
257	δ Leonis	2.3	7 17.88	3.202	2.5	20	68 46 31.1	19.65	2.5	20
258	O. Arg. S. 11246 . .	8.5	7 36.33	2.902	2.3	3	119 22 6.8	19.54	2.3	3
259	Anonymous . . .	. .	8 7.82	2.903	2.3	3	119 27 59.3	19.55	2.3	3
260	75 Leonis	5.5	10 42.18	3.086	2.3	3	87 17 9.6	19.60	2.3	3
261	XI, 2.	7.0*	11 11 49.04	+ 2.884	2.3	1	124 2 18.8	— 19.62	2.3	1
262	Anonymous . . .	9.0	12 9.77	2.882	2.0	1	124 30 56.6	19.62	2.0	1
263	Anonymous . . .	. .	12 46.74	2.884	2.3	4	124 30 7.4	19.64	2.3	4
264	δ Crateris	3.3	12 56.57	2.996	2.4	8	104 5 9.8	19.44	2.4	8
265	σ Leonis	4.0	14 32.11	3.103	2.2	3	83 16 10.1	19.67	2.2	3

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			h. m. s.	s.			° ′ ″	″		
266	Anonymous . . .	8.0	11 17 36.95	+ 2.882	2.3	3	127 46 56.2	— 19.72	2.3	3
267	Anonymous . . .	. .	18 22.80	2.895	2.3	4	126 16 41.2	19.73	2.3	4
268	82 Leonis	7.0	19 4.66	3.089	2.3	3	85 59 38.3	19.74	2.3	3
269	Anonymous . . .	8.0*	19 38.69	2.901	2.2	4	126 12 4.6	19.75	2.2	3
270	τ Leonis	5.0	21 21.34	3.088	2.3	5	86 26 20.0	19.78	2.3	5
271	Anonymous . . .	. .	11 23 28.34	+ 2.908	2.4	3	127 45 7.7	— 19.80	2.4	3
272	e Leonis	5.0	23 46.54	3.064	2.3	3	92 17 51.1	19.81	2.3	3
273	λ Draconis, S. P. . .	3.3	23 46.90	3.641	2.9	2	19 57 46.6	19.86	2.2	1
274	Anonymous . . .	. .	23 51.62	2.870	2.3	2	133 59 11.4	19.81	2.3	1
275	Anonymous . . .	. .	25 25.54	2.878	2.3	1	134 1 59.8	19.83	2.3	1
276	Anonymous . . .	. .	11 25 27.78	+ 2.907	2.4	2	129 28 29.6	— 19.83	2.4	2
277	Anonymous . . .	. .	28 16.33	2.903	2.4	2	132 31 50.2	19.87	2.4	1
278	υ Leonis	4.7	30 23.74	3.072	2.3	7	9 7 0.9	19.83	2.3	7
279	Anonymons . . .	6.7*	35 2.34	2.939	2.2	4	132 23 11.3	19.94	2.2	4
280	Anonymous . . .	8.8*	35 20.05	3.099	2.3	3	79 27 43.4	19.94	2.3	3
281	XI, 10	6.0	11 37 5.01	+ 2.974	2.4	1	126 28 59.4	— 19.96	2.4	1
282	ν Virginis.	4.5	39 16.82	3.088	2.2	4	82 45 12.8	19.98	2.2	4
283	β Leonis	2.0	42 31.76	3.066	2.4	15	74 42 44.8	20.09	2.4	15
284	β Virginis.	3.5	44 1.70	3.076	2.3	3	87 30 50.4	20.01	2.3	3
285	B. A. C 4006 . . .	6.0	44 29.71	3.065	2.3	4	94 37 17.6	20.01	2.3	4
286	XI, 16	7.2*	11 50 35.96	+ 3.037	2.3	1	122 36 9.8	— 20.04	2.3	1
287	XI, 17	8.0*	55 40.49	3.058	2.3	2	119 53 37.0	20.05	2.3	1
288	o Virginis	4.0	58 41.31	3.060	2.4	16	80 33 21.5	20.00	2.4	16
289	XII, 1	6.8*	12 5 16.26	3.088	2.3	3	117 21 15.6	20.05	2.3	3
290	4 Draconis	4.7	6 10.46	2.908	2.2	3	11 40 23.7	20.06	2.2	3
291	4 Draconis, S. P. . .	4.7	12 6 9.45	+ 2.908	2.9	1	11 40 21.9	— 20.06	2.9	1
292	XII, 3	7.8*	10 13.41	3.101	2.3	3	115 53 7.6	20.04	2.3	3
293	η Virginis	3.3	13 21.49	3.068	2.3	17	89 57 18.7	20.03	2.3	17
294	Anonymous . . .	9.5	14 25.23	3.075	2.2	3	91 42 50.5	20.02	2.3	3
295	XII, 5	7.8*	20 43.82	3.136	2.3	3	118 0 25.7	19.98	2.3	3
296	XII, 6	5.5*	12 23 35.68	+ 3.130	2.3	2	112 59 17.3	— 19.95	2.3	2
297	Anonymous . . .	. .	23 59.14	. .	2.3	1	91 59 ±			
298	Anonymous . . .	. .	24 33.03	3.052	2.3	1	81 57 51.6	19.94	2.3	1
299	q Virginis.	6.0	27 10.50	3.096	2.3	3	98 44 45.0	19.92	2.3	3
300	β Corvi	2.3	27 39.99	3.138	2.3	9	112 41 18.0	19.95	2.3	9
301	κ Draconis	3.3	12 28 0.35	+ 2.601	2.4	1	19 30 22.5	— 19.93	2.4	1
302	κ Draconis, S. P. . .	3.3	28 0.54	2.601	2.8	2	19 30 20.2	19.93	2.8	2
303	Anonymous . . .	. .	30 1.03	3.049	2.3	1	82 34 9.1	19.89	2.3	1
304	XII, 7	6.7*	30 55.30	2.901	2.3	3	116 25 51.3	19.88	2.3	3
305	XII, 8	8.2*	33 21.85	3.219	2.4	4	127 9 10.2	19.85	2.4	3

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			h. m. s.	s.			° ′ ″	″		
306	γ^1 Virginis	2.5	12 35 10.46	+ 3.075	2.2	3	90 44 46.6	— 19.82	2.2	3
307	28 Virginis	6.0	35 20.61	3.090	2.3	4	96 47 44.4	19.82	2.3	4
308	XII, 9	8.0*	35 56.95	3.194	2.3	1	120 14 39.3	19.81	2.3	1
309	Anonymous	.	36 21.52	3.167	2.3	1	114 15 4.4	19.80	2.3	1
310	XII, 10	8.5*	36 26.22	3.168	2.4	2	114 17 17.1	19.80	2.4	1
311	Anonymous	.	12 38 38.30	+ 3.099	2.3	1	96 53 45.9	— 19.77	2.3	1
312	XII, 12	6.5*	39 51.80	3.220	2.4	2	122 36 49.6	19.75	2.4	2
313	XII, 13	8.0*	43 19.49	3.190	2.4	2	115 8 32.3	19.70	2.4	2
314	XII, 14	6.0*	43 44.86	3.239	2.4	2	123 18 3.2	19.69	2.4	2
315	XII, 15	8.0*	44 47.56	3.230	2.4	2	121 20 51.8	19.67	2.4	2
316	XII, 16	7.0*	12 44 58.68	+ 3.251	2.4	2	124 23 7.9	— 19.67	2.4	2
317	38 Virginis	6.0	46 37.99	3.086	2.3	4	92 51 24.7	19.64	2.3	4
318	32^2 CAMELOPARDALIS . .	4.7	48 12.64	0.355	2.3	4	5 53 29.2	19.63	2.3	4
319	32^2 CAMELOPARDALIS, S. P.	4.7	48 12.01	0.355	2.1	1	5 53 29.6	19.63	2.1	1
320	12 CANUM VENATICORUM.	3.0	50 2.23	2.817	2.4	13	50 59 23.8	19.51	2.4	13
321	XII, 17	7.8*	12 50 55.60	+ 3.304	2.4	4	128 13 30.1	— 19.57	2.4	4
322	48 Virginis	6.0	57 18.79	3.089	2.3	3	92 58 25.0	19.43	2.3	3
323	Anonymous	.	59 30.03	3.112	2.3	1	96 41 41.9	19.39	2.3	1
324	B. A. C. 4394 . . .	5.5	13 1 52.08	3.124	2.3	3	98 17 52.5	19.33	2.3	3
325	XIII, 1	6.0*	1 56.02	3.302	2.3	1	122 49 1.2	19.33	2.3	1
326	Anonymous	8.5*	13 2 2.35	+ 3.303	2.3	1	122 48 17.0	— 19.33	2.3	1
327	50 Virginis	6.0	3 3.44	3.134	2.3	3	99 38 44.8	19.30	2.3	3
328	θ VIRGINIS.	4.5	3 19.45	3.101	2.3	26	94 51 17.7	19.31	2.3	26
329	XIII, 2	6.0*	4 41.84	3.253	2.4	2	115 52 12.6	19.26	2.4	2
330	58 Virginis	6.0	10 44.88	3.143	2.3	4	99 52 15.3	19.11	2.3	3
331	Anonymous	10.0*	13 16 3.50	+ 3.138	2.3	2	98 38 46.9	— 18.96	2.3	2
332	α VIRGINIS.	1.0	18 27.10	3.153	2.5	35	100 29 32.7	18.91	2.5	35
333	i Virginis	5.0	19 57.54	3.170	2.3	3	102 2 27.6	18.85	2.3	3
334	XIII, 10	8.5*	21 27.80	3.307	2.4	2	116 44 6.6	18.80	2.4	1
335	XIII, 11	9.0*	23 0.55	3.419	2.4	1	126 14 11.2	18.76	2.4	1
336	l^2 Virginis	5.0	13 25 18.75	+ 3.120	2.4	4	95 35 39.1	— 18.68	2.4	2
337	XIII, 12	5.5*	25 28.53	3.332	2.4	2	118 1 55.5	18.68	2.4	2
338	75 Virginis	6.0	26 1.47	3.201	2.3	3	104 42 13.6	18.66	2.3	3
339	ζ VIRGINIS.	3.3	28 10.36	3.053	2.5	17	89 56 25.8	18.52	2.5	17
340	80 Virginis	6.0	28 51.86	3.114	2.3	3	94 44 35.1	18.59	2.3	3
341	XIII, 16	7.0	13 29 58.43	+ 3.458	2.4	1	126 59 43.8	— 18.53	2.4	1
342	XIII, 17	7.2*	31 11.33	3.362	2.4	3	119 11 12.2	18.49	2.4	3
343	XIII, 18	8.0*	31 12.49	3.293	2.4	1	113 2 21.8	18.49	2.4	1
344	XIII, 19	8.0	31 32.73	3.403	2.4	1	122 27 31.4	18.48	2.4	1
345	XIII, 20	5.5*	32 10.53	3.497	2.4	3	129 5 45.8	18.46	2.4	3

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			h. m. s.	s.			° ′ ″	″		
346	XIII, 22	7.5*	13 34 25.89	+ 3.419	2.4	3	122 56 56.0	— 18.38	2.4	3
347	*m* Virginis	6.0	34 53.79	3.148	2.3	3	98 3 21.4	18.36	2.3	3
348	XIII, 23	8.5*	40 43.08	3.511	2.4	3	127 37 19.1	18.15	2.4	3
349	XIII, 24	8.5*	41 33.28	3.475	2.4	3	125 3 32.2	18.12	2.4	3
350	η Ursæ Majoris	2.0	42 29.81	2.374	2.6	6	40 2 50.2	18.10	2.5	5
351	XIII, 25	7.0*	13 48 34.07	+ 3.424	2.4	2	119 56 56.6	— 17.85	2.4	3
352	η Bootis	3.0	48 35.39	2.859	2.5	23	70 57 34.9	18.18	2.5	22
353	XIII, 26	7.0	50 0.25	3.401	2.4	3	118 0 29.2	17.79	2.4	3
354	XIII, 27	7.0*	53 22.30	3.103	2.4	3	115 38 19.9	17.65	2.4	3
355	XIII, 28	7.0*	53 30.77	3.548	2.4	3	126 50 48.9	17.65	2.4	3
356	94 Virginis	6.0	13 59 31.22	+ 3.169	2.3	4	98 16 46.1	— 17.39	2.3	4
357	95 Virginis	6.0	59 56.76	3.174	2.3	2	98 42 6.0	17.37	2.3	2
358	α Draconis	3.3	14 0 55.55	1.623	2.4	7	25 0 42.7	17.36	2.4	6
359	κ Virginis	4.5	6 4.24	3.186	2.3	3	99 40 35.6	17.10	2.3	3
360	XIV, 1	8.5*	6 24.67	3.501	2.4	3	121 26 41.0	17.08	2.4	2
361	B. A. C. 4722	6.0	14 8 20.98	+ 3.298	2.3	3	107 3 8.4	— 16.99	2.3	3
362	XIV, 2	8.2*	9 4.56	3.561	2.5	1	124 24 45.0	16.96	2.5	1
363	α Bootis	1.0	9 49.43	2.734	2.6	26	70 9 0.7	18.89	2.6	22
364	XIV, 3	8.0*	10 13.93	3.429	2.5	2	116 21 51.4	16.91	2.5	2
365	XIV, 4	7.5*	11 39.86	3.618	2.4	2	126 24 32.7	16.84	2.4	2
366	λ Virginis	4.5	14 12 11.24	+ 3.238	2.3	3	102 46 49.7	— 16.81	2.3	3
367	XIV, 5	6.0*	12 44.68	3.302	2.4	2	117 27 29.7	16.79	2.4	2
368	XIV, 6	6.0	12 46.71	3.630	2.4	2	127 17 43.3	16.78	2.4	2
369	XIV, 7	8.0*	16 26.67	3.490	2.4	1	119 5 32.9	16.61	2.4	1
370	XIV, 8	8.0*	16 38.00	3.550	2.4	1	122 30 14.1	16.60	2.4	1
371	XIV, 9	6.0	14 17 30.81	+ 3.412	2.4	1	114 13 25.9	— 16.55	2.4	1
372	XIV, 10	8.0	17 59.83	3.480	2.4	1	118 18 45.7	16.53	2.4	1
373	XIV, 11	7.5*	18 54.14	3.695	2.5	2	129 17 38.9	16.48	2.5	2
374	XIV, 12	9.0*	20 34.22	. .	2.4	1				
375	θ Bootis	3.7	20 50.30	2.043	2.3	3	37 33 24.8	16.78	2.3	3
376	XIV, 13	7.8*	14 21 40.46	+ 3.494	2.4	2	118 32 23.5	— 16.35	2.4	2
377	XIV, 14	7.0*	22 8.91	3.538	2.4	2	115 26 23.8	16.32	2.4	2
378	XIV, 15	7.0	24 39.46	3.477	2.4	3	117 8 13.7	16.19	2.4	3
379	Anonymous	. .	26 25.04	+ 3.141	2.3	1	94 54 45.1	16.10	2.3	1
380	5 Ursæ Minoris	4.7	27 49.18	— 0.211	2.4	2	13 44 6.1	16.05	2.4	2
381	5 Ursæ Minoris, S. P.	4.7	14 27 49.18	— 0.211	2.4	1	13 44 5.1	— 16.05	2.4	1
382	XIV, 16	9.0*	29 55.83	+ 3.641	2.4	3	124 57 37.2	15.92	2.4	3
383	XIV, 17	7.0	31 35.79	3.738	2.4	3	129 0 35.0	15.83	2.4	3
384	XIV, 18	7.0*	32 30.56	3.485	2.4	2	116 34 41.5	15.78	2.4	2
385	XIV, 19	6.5*	34 13.47	3.561	2.4	3	120 22 56.5	15.68	2.4	3

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			h. m. s.	s.			° ′ ″	″		
386	XIV, 20	7.8*	14 38 45.82	+ 3.588	2.4	2	121 8 31.3	— 15.43	2.4	2
387	ε Bootis	2.3	39 23.84	2.621	2.5	21	62 23 6.3	15.37	2.5	20
388	XIV, 21	8.0*	39 49.82	3.656	2.4	2	124 11 40.5	15.37	2.4	2
389	XIV, 22	9.0*	42 7.10	3.724	2.4	2	126 51 41.1	15.25	2.4	2
390	XIV, 23	7.5*	42 22.48	3.545	2.4	2	118 30 6.3	15.23	2.4	2
391	α^2 Librae	2.3	14 43 48.03	+ 3.307	2.4	14	105 30 30.1	— 15.20	2.4	12
392	XIV, 24	6.5*	47 53.80	3.660	2.5	2	123 20 2.1	14.91	2.5	2
393	Anonymous	10.0*	48 14.58	3.485	2.5	1	114 45 1.3	14.89	2.5	1
394	XIV, 25	9.0*	49 4.42	3.426	2.4	1	111 27 54.8	14.84	2.4	1
395	XIV, 26	8.0	49 18.90	3.507	2.4	1	115 45 56.3	14.83	2.4	1
396	XIV, 27	7.0*	14 49 35.76	+ 3.565	2.5	1	118 38 16.4	— 14.81	2.5	1
397	B. A. C. 4923[1]	6.0	49 58.82	+ 3.416	2.4	2	110 50 4.7	14.79	2.4	2
398	β Ursæ Minoris, S. P.	2.0	51 6.70	— 0.249	2.2	2	15 19 16.9	14.75	2.2	2
399	XIV, 28	9.0*	53 7.42	+ 3.449	2.4	3	112 20 19.3	14.60	2.4	3
400	Anonymous	..	56 52.12	3.441	2.3	1	111 34 46.7	14.38	2.3	1
401	β Bootis	3.0	14 57 7.52	+ 2.260	2.4	3	49 6 12.4	— 14.40	2.4	3
402	XIV, 30	8.0*	58 58.03	3.793	2.4	2	127 26 51.4	14.25	2.4	2
403	XIV, 29	8.0*	15 0 48.30	3.540	2.5	2	116 13 13.4	14.13	2.5	2
404	XV, 1	7.0	1 20.11	3.625	2.4	1	120 11 17.4	14.10	2.4	1
405	XIV, 31	7.8*	1 24.86	3.575	2.4	4	117 52 11.7	14.10	2.4	4
406	*i* Librae	4.5	15 4 55.70	+ 3.410	2.3	3	109 18 19.4	— 13.87	2.3	3
407	β Librae	2.0	10 7.31	3.220	2.4	13	98 54 31.9	13.55	2.4	12
408	XV, 4	9.0*	11 23.01	3.730	2.4	1	123 33 45.0	13.54	2.4	1
409	XV, 6	7.0*	13 15.54	3.846	2.4	1	127 45 11.9	13.34	2.4	1
410	28 Librae	6.0	13 38.45	3.391	2.4	3	107 41 30.2	13.31	2.4	3
411	XV, 7	8.0*	15 14 59.06	+ 3.627	2.5	2	118 52 50.5	— 13.23	2.5	2
412	o^2 Librae	6.0	15 53.58	3.336	2.3	4	104 40 30.5	13.16	2.3	4
413	XV, 9	5.0	19 6.63	3.772	2.5	1	128 18 59.6	12.94	2.5	1
414	μ^1 Bootis	3.7	19 39.38	+ 2.268	2.4	5	52 10 22.1	12.81	2.4	5
415	γ^2 Ursæ Minoris, S. P.	3.0	20 56.97	— 0.147	2.0	2	17 42 39.6	12.80	2.0	2
416	ζ^1 Librae	4.0	15 21 2.40	+ 3.372	2.3	4	106 16 5.1	— 12.82	2.3	4
417	XV, 10	9.0*	22 55.07	3.786	2.4	1	125 11 51.5	12.69	2.4	1
418	ζ^3 Librae	6.0	23 27.38	3.373	2.4	2	106 10 4.8	12.66	2.4	2
419	ζ^4 Librae	6.0	25 41.49	3.380	2.5	3	106 24 59.4	12.51	2.5	3
420	XV, 14	5.0	28 9.81	3.746	2.4	1	122 39 47.1	12.34	2.4	1
421	γ Librae	4.5	15 28 22.10	+ 3.342	2.3	3	104 21 39.0	— 12.33	2.3	3
422	α Coronæ Borealis	2.0	29 16.10	2.539	2.6	7	62 51 11.0	12.33	2.5	8
423	XV, 15	9.5*	29 35.75	3.613	2.5	1	117 2 52.2	12.24	2.5	1
424	μ Coronæ Borealis	5.0	30 33.15	2.194	2.3	3	50 33 48.2	12.17	2.3	3
425	Anonymous	..	32 2.28	3.534	2.4	2	113 22 50.2	12.07	2.4	2

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			h. m. s.	s.			° ′ ″	″		
426	42 Libræ	5.5	15 32 43.11	+ 3.535	2.5	1	113 23 58.7	— 12.02	2.5	2
427	XV, 20	9.0	33 16.32	3.488	2.5	1	111 11 14.7	11.98	2.5	1
428	B. A. C. 5175 . . .	7.0	34 2.46	2.034	2.4	3	45 58 38.5	11.93	2.4	3
429	κ Libræ	5.0	34 34.45	3.448	2.3	3	109 15 41.8	11.89	2.5	3
430	ι Serpentis	5.0	35 50.70	2.677	2.4	2	69 54 57.2	11.80	2.4	2
431	η Libræ	6.0	15 36 52.54	+ 3.368	2.4	3	105 15 45.4	— 11.73	2.4	4
432	α SERPENTIS	2.3	37 57.86	2.950	2.6	9	83 10 12.0	11.59	2.6	9
433	XV, 21	6.0	38 25.58	3.419	2.5	1	117 39 27.2	11.62	2.5	1
434	ε SERPENTIS	3.3	44 26.25	2.987	2.5	8	85 8 7.1	11.10	2.5	8
435	B. A. C. 5249 . . .	5.5	44 43.22	0.893	2.4	3	27 0 15.1	11.10	2.4	3
436	B. A. C. 5253 . . .	6.0	15 46 15.41	+ 3.572	2.5	3	114 8 58.0	— 11.05	2.5	3
437	θ Libræ	4.5	46 32.39	+ 3.400	2.3	3	106 21 6.1	11.03	2.5	3
438	ζ URSÆ MINORIS. . .	4.5	48 40.58	— 2.287	2.5	1	11 48 48.2	10.88	2.5	1
439	B. A. C. 5279 . . .	5.0	49 18.04	+ 1.429	2.4	2	33 47 39.2	10.83	2.4	3
440	π Scorpii	3.0	51 6.71	3.618	2.5	3	115 44 35.4	10.70	2.5	3
441	ε CORONÆ BOREALIS .	4.0	15 52 17.33	+ 2.485	2.4	3	62 44 59.6	— 10.64	2.4	3
442	δ SCORPII	2.3	52 46.05	3.536	2.3	2	112 15 18.1	10.57	2.3	2
443	49 Libræ	5.5	53 8.70	3.402	2.5	3	106 9 14.7	10.54	2.5	4
444	B. A. C. 5310 . . .	5.5	54 14.14	2.213	2.4	2	52 59 29.8	10.46	2.4	2
445	β^1 SCORPII	2.0	57 59.82	3.477	2 3	5	109 27 11.4	10.20	2.3	5
446	B. A. C. 5338 . . .	6.5	15 58 48.90	+ 1.860	2 4	2	43 36 25.0	— 10.12	2.4	3
447	ω^2 Scorpii	4.5	59 54.23	3.506	2.5	3	110 31 14.0	10.04	2.5	4
448	Lacaille 6716 . . .	7.7	16 2 30.81	4.042	2.5	3	129 47 14.2	9.84	2.5	3
449	ν^1 Scorpii	7.0	4 32.38	3.478	2.4	5	109 6 55.1	9.68	2.4	6
450	ν^2 Scorpii	4.0	4 33.51	3.478	2 4	3	109 7 32.5	9.68	2.4	3
451	δ OPHIUCHI	3.0	16 7 38.33	+ 3.138	2.6	5	93 21 47.1	— 9.57	2.6	5
452	17 Herculis	6.0	10 49.25	2.557	2.4	3	66 33 27.0	9.20	2.4	3
453	Anonymous . . .	9.5*	12 25.35	3.473	2.5	3	108 33 40.4	9.07	2.5	3
454	19 Scorpii	5.5	12 56.21	3.600	2.5	3	113 51 31.1	9.03	2.5	3
455	σ Scorpii	3.5	13 24.63	3.622	2.5	3	116 16 59.7	9.00	2.5	3
456	B. A. C. 5459 . . .	5.0	16 15 7.37	+ 0.989	2.5	3	29 56 2.9	— 8.86	2.5	3
457	Anonymous . . .	9.2*	15 12.54	3.893	2.5	4	124 21 37.1	8.85	2.5	3
458	Anonymous . . .	9.2*	15 17.84	3.893	2.5	4	124 22 10.2	8.85	2.5	3
459	τ HERCULIS	3.3	15 53.72	1.798	2.4	3	43 22 51.5	8.77	2.4	2
460	ξ Coronæ Borealis . .	5.0	17 6.71	2.343	2.5	3	58 48 33.5	8.71	2.5	3
461	χ Ophiuchi	6.0	16 19 36.48	+ 3.470	2.5	4	108 9 48.7	— 8.51	2.5	4
462	α SCORPII	1.3	21 33.67	3.669	2.4	8	116 8 44.5	8.38	2.4	6
463	B. A. C. 5503 . . .	7.0	21 45.69	1.515	2.5	3	37 59 33.5	8.34	2.5	3
464	22 Scorpii	5.0	22 26.01	3.636	2.5	3	114 49 51.0	8.30	2.5	3
465	β Herculis.	2.5	24 43.11	2.584	2.6	4	68 13 47.3	8.10	2.6	3

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			h. m. s.	s.			° ′ ″	″		
466	ζ Ophiuchi	2.7	16 30 6.68	+ 3.298	2.4	7	100 18 21.2	— 7.62	2.5	6
467	B. A. C. 5560 . . .	6.0	31 37.42	0.829	2.5	3	28 54 29.4	7.55	2.5	3
468	16 Draconis	5.5	33 10.00	1.414	2.5	4	36 50 30.8	7.42	2.5	4
469	17[1] Draconis	6.0	33 12.51	1.413	2.5	4	36 49 3.0	7.41	2.5	4
470	17[2] Draconis	. .	33 12.97	1.413	2.4	1	. . . .	. .	. .	.
471	η Herculis	3.0	16 38 30.49	+ 2.054	2.4	15	50 49 58.4	— 7.05	2.4	12
472	48 Herculis	6.5	44 16.64	1.413	2.4	3	59 48 50.6	6.51	2.4	3
473	50 Herculis	5.0	45 39.29	2.340	2.5	3	59 58 24.0	6.39	2.5	3
474	56 Herculis	6.0	49 47.95	2.452	2.5	3	64 3 41.3	6.05	2.5	3
475	κ Ophiuchi	3.3	51 36.65	2.835	2.4	12	80 25 26.2	5.87	2.4	8
476	29 Ophiuchi	6.0	16 54 22.12	+ 3.506	2.5	3	108 41 40.3	— 5.66	2.5	3
477	d Herculis	5.0	56 52.82	2.209	2.5	2	56 14 41.6	5.42	2.5	2
478	B. A. C. 5752 . . .	5.5	57 0.72	+ 1.100	2.5	3	33 7 21.8	5.44	2.5	3
479	ε Ursæ Minoris. . .	4.3	59 9.96	— 6.385	2.5	6	7 45 20.8	5.26	2.5	2
480	ε Ursæ Minoris, S. P. .	4.3	59 10.07	— 6.385	2.9	3	7 45 22.4	5.26	2.9	1
481	B. A. C. 5797 . . .	6.0	17 5 6.29	+ 0.958	2.5	3	31 33 48.8	— 4.76	2.5	3
482	a[1] Herculis	Var.	8 48.70	2.733	2.6	14	75 27 43.1	4.39	2.6	11
483	δ Herculis	4.0	9 46.48	2.464	2.5	2	65 0 29.4	4.36	2.5	2
484	B. A. C. 5831 . . .	6.0	10 18.12	3.652	2.5	3	113 55 44.0	4.32	2.5	3
485	u Herculis	4.0	12 35.90	2.215	2.5	3	56 45 37.2	4.12	2.5	3
486	ξ Ophiuchi	5.0	17 13 20.13	+ 3.471	2.6	2	110 58 22.9	— 4.06	2.6	2
487	B. A. C. 5853 . . .	6.0	13 33.33	1.521	2.5	3	40 10 14.0	4.04	2.5	3
488	θ Ophiuchi	3.5	14 8.98	3.708	2.6	3	115 52 8.2	3.99	2.6	3
489	43 Ophiuchi	6.0	15 18.28	3.770	2.6	3	118 0 58.6	3.89	2.6	3
490	w Herculis	6.0	15 52.33	2.232	2.5	3	57 21 58.3	3.84	2.5	3
491	74 Herculis	6.0	17 16 44.28	+ 1.695	2.5	2	43 37 57.3	— 3.76	2.5	2
492	44 Ophiuchi	5.0	18 33.25	3.659	2.6	4	114 3 17.1	3.69	2.6	3
493	B. A. A. 5895 . . .	6.5	20 1.18	2.077	2.4	3	52 55 57.3	3.48	2.4	3
494	β Draconis	2.7	27 32.46	1.351	2.2	5	37 36 10.9	2.83	2.2	4
495	a Ophiuchi	2.0	28 59.62	2.782	2.6	13	77 20 42.0	2.92	2.6	12
496	B. A. C. 5962 . . .	6.0	17 31 44.54	+ 2.279	2.5	2	59 8 3.6	— 2.47	2.5	2
497	O. Arg. N. 17415 . .	9.0	37 10.48	— 0.298	2.3	3	21 32 30.8	1.99	2.3	2
498	O. Arg. N. 17420 . .	7.5	37 18.97	— 0.297	2.3	3	21 32 55.2	1.98	2.3	2
499	ω Draconis	5.0	37 42.14	— 0.356	2.5	2	21 10 58.8	1.66	2.5	2
500	μ Herculis	3.3	41 26 99	+ 2.345	2.5	17	62 12 10.7	2.35	2.6	16
501	ψ[1] Draconis, S. P. . .	4.3	17 44 13.44	— 1.082	2.0	1	17 47 21.1	— 1.38	2.0	1
302	89 Herculis	5.5	50 15.46	+ 2.419	2.4	2	63 55 40.2	1.64	2.4	2
503	ξ Herculis	4.0	51 19.01	1.023	2.5	3	33 6 23.6	0.76	2.5	3
504	γ Draconis	2.3	53 37.98	1.394	2.2	9	38 29 42.6	0.59	2.3	7
505	γ[2] Sagittarii	3.3	57 35.07	3.852	2.5	10	120 25 21.8	— 0.43	2.5	9

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			h. m. s.	s.			° ′ ″	″		
506	*o* Herculis	4.0	18 2 33.06	+ 2.339	2.5	3	61 15 12.2	+ 0.22	2.5	4
507	Anonymous . . .	. .	5 1.09	3.586	2.6	3	111 0 55.6	0.44	2.6	3
508	μ^1 SAGITTARII	4.0	6 6.50	3.586	2.5	7	111 5 22.8	0.54	2.5	5
509	B. A. C. 6185 . . .	5.5	7 54.28	+ 1.216	2.5	3	35 45 2.9	0.69	2.5	3
510	δ URSÆ MINORIS. . .	4.3	13 37.18	−19.406	2.5	19	3 23 35.7	1.23	2.5	18
511	δ URSÆ MINORIS, S. P. .	4.3	18 13 37.42	−19.406	2.4	19	3 23 36.4	+ 1.23	2.4	16
512	105 Herculis	5.0	13 54.68	+ 2.467	2.5	3	65 36 19.0	1.22	2.5	3
513	η SERPENTIS	3.0	14 41.24	3.099	2.5	3	92 55 48.1	0.61	2.5	2
514	ε Sagittarii	3.0	15 40.45	3.987	2.6	3	124 26 29.8	1.37	2.6	3
515	21 Sagittarii	5.0	17 43.60	3.573	2.6	4	110 36 26.9	1.55	2.6	4
516	B. A. C. 6256 . . .	9.0*	18 19 17.61	+ 3.892	2.5	6	121 36 13.4	+ 1.68	2.5	6
517	λ Sagittarii	3.0	20 4.26	3.707	2.5	3	115 29 24.4	1.76	2.5	4
518	*b* Draconis	5.0	22 2.59	0.881	2.4	3	31 16 22.3	1.93	2.4	3
519	B. A. C. 6287 . . .	6.0	22 40.42	3.525	2.5	4	108 48 26.8	1.98	2.5	4
520	Anonymous . . .	8.0*	22 40.91	3.939	2.6	2	123 4 17.2	1.98	2.6	2
521	B. A. C. 6311 . . .	6.0	18 24 55.86	+ 0.804	2.5	3	30 22 27.0	+ 2.18	2.5	3
522	Anonymous . . .	9.5*	25 16.64	4.103	2.6	2	127 47 58.1	2.21	2.6	2
523	Anonymous . . .	9.5*	25 37.40	4.110	2.6	2	128 0 11.8	2.24	2.6	2
524	B. A. C. 6322 . . .	6.0	27 26.64	2.494	2.5	2	66 28 36.8	2.40	2.5	2
525	1 AQUILÆ	4.3	28 14.51	3.264	2.5	13	98 19 52.7	2.16	2.5	12
526	O. Arg. S. 18521 . .	10.5*	18 32 34.08	+ 3.692	2.6	1	115 6 31.5	+ 2.84	2.6	1
527	*a* LYRÆ	1.0	32 36.23	2.032	2.4	21	51 20 2.5	3.13	2.4	19
528	O. Arg. S. 18525 . .	9.0*	32 54.98	3.693	2.6	1	115 7 34.2	2.78	2.6	1
529	Anonymous . . .	. .	33 44.47	3.692	2.6	1	115 6 16.5	2.94	2.6	1
530	B. A. C. 6365 . . .	6.0	35 52.00	2.031	2.6	3	51 45 1.8	3.13	2.6	4
531	Anonymous . . .	. .	18 36 48.57	+ 3.702	2.4	1	115 29 37.6	+ 3.21	2.4	1
532	ϕ Sagittarii	3.5	37 39.50	3.748	2.5	5	117 7 10.6	3.28	2.5	4
533	B. A. C. 6393 . . .	6.0	39 49.12	0.529	2.6	2	27 22 38.8	3.47	2.6	3
534	110 Herculis	5.0	40 9.20	2.582	2.6	3	69 34 28.7	3.50	2.6	3
535	29 Sagittarii	9.0*	42 4.41	3.563	2.6	3	110 28 4.0	3.66	2.6	3
536	B. A. C. 6410 . . .	6.0	18 42 47.78	+ 0.711	2.7	3	29 5 13.7	+ 3.72	2.6	4
537	β LYRÆ	Var.	45 21.27	2.214	2.5	13	56 47 3.6	3.93	2.5	9
538	33 Sagittarii	6.0	46 21.12	3.588	2.6	3	111 30 50.3	4.03	2.6	3
539	σ SAGITTARII	2.3	47 19.61	3.724	2.6	1	. . . .	. .	. .	.
540	113 Herculis	5.0	49 20.70	2.532	2.5	2	67 30 55.1	4.29	2.5	2
541	ξ^1 Sagittarii	6.0	18 49 44.07	+ 2.569	2.5	3	110 49 16.2	+ 4.32	2.5	3
542	*o* Sagittarii	4.0	57 0.71	3.594	2.5	3	111 55 34.8	4.94	2.5	3
543	τ Sagittarii	3.5	58 56.94	3.756	2.6	3	117 51 17.9	5.10	2.6	3
544	B. A. C. 6527 . . .	8.0	59 16.15	2.628	2.6	3	71 2 49.1	5.13	2.6	3
545	ζ AQUILÆ	3.0	59 31.63	2.755	2.5	18	76 19 29.6	5.06	2.5	14

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			h. m. s.	s.			° ′ ″	″		
546	Weisse 1542 . . .	8.5*	19 0 49.52	+ 3.102	2.6	4	91 19 16.3	+ 5.26	2.6	3
547	π Sagittarii	3.0	2 9.06	3.573	2.5	3	111 13 28.3	5.37	2.5	3
548	ψ Sagittarii	5.0	7 41.45	3.668	2.6	4	115 28 29.1	5.84	2.6	4
549	Anonymous . . .	6.0	9 40.24	3.517	2.6	1	109 12 36.7	6.00	2.6	1
550	d SAGITTARII	5.0	10 8.69	3.513	2.6	8	109 10 41.2	6.08	2.5	6
551	δ DRACONIS	3.0	19 12 31.17	+ 0.034	2.2	5	22 33 50.1	+ 6.31	2.1	4
552	δ DRACONIS, S. P. . .	3.0	12 31.15	0.034	2.2	1	22 33 48.9	6.31	2.2	1
553	B. A. C. 6607 . . .	6.0	12 57.80	3.602	2.6	4	112 38 17.4	6.28	2.6	4
554	ρ^1 Sagittarii	4.0	14 14.89	3.486	2.6	4	108 5 9.3	6.38	2.6	4
555	ρ^2 Sagittarii	5.5	14 22.88	3.410	2.7	2	108 32 34.8	6.39	2.7	2
556	B. A. C. 6628 . . .	6.0	19 16 31.25	+ 3.752	2.6	3	118 16 39.2	+ 6.57	2.6	3
557	τ DRACONIS, S. P. . .	5.0	18 0.30	− 1.107	2.9	1	13 52 59.8	6.79	2.9	1
558	δ AQUILÆ	3.3	19 2.67	+ 3.024	2.6	13	87 8 17.9	6.87	2.6	10
559	B. A. C. 6658 . . .	6.0	20 13.32	3.496	2.6	3	108 36 19.1	6.88	2.6	3
560	Anonymous . . .	. .	20 38.49	3.496	2.6	1	108 36 57.2	6.91	2.6	1
561	Anonymous . . .	. .	19 28 27.09	+ 4.113	2.7	3	130 1 41.3	+ 7.55	2.7	2
562	Anonymous . . .	. .	29 25.10	4.111	2.6	1	130 1 49.0	7.63	2.6	1
563	κ AQUILÆ	5.0	30 0.26	3.230	2.6	11	97 18 34.9	7.70	2.6	7
564	f Sagittarii	5.0	38 53.58	3.516	2.6	3	110 3 59.7	8.39	2.6	3
565	γ AQUILÆ	3.0	40 10.48	2.853	2.6	25	79 41 48.7	8.50	2.5	19
566	α AQUILÆ	1.3	19 44 32.26	+ 2.928	2.6	26	81 28 4.1	+ 9.21	2.5	25
567	O. Arg. S. 20022 . .	8.5	44 52.75	3.688	2.6	1	117 9 50.5	8.86	2.6	1
568	O. Arg. S. 20024[1] . .	9.0	44 56.93	3.689	2.7	3	117 12 54.9	8.87	2.7	3
569	O. Arg. S. 20024[2] . .	9.0	44 57.06	3.689	2.7	2	117 13 3.7	8.87	2.7	2
570	ω Sagittarii	5.0	47 59.76	3.670	2.4	2	116 38 12.2	8.87	2.4	2
571	β AQUILÆ	4.0	19 49 1.53	+ 2.947	2.5	12	83 54 40.3	+ 8.71	2.5	11
572	λ URSÆ MINORIS. . .	6.7	52 17.84	−59.760	2.6	2	1 4 36.2	-9.44	2.7	10
573	λ URSÆ MINORIS, S P. .	6.7	52 18.06	−59.760	2.3	13	1 4 36.2	9.44	2.2	17
574	τ AQUILÆ	5.7	57 53.21	+ 2.933	2.6	2	83 4 52.9	9.89	2.6	1
575	Anonymous . . .	. .	20 4 13.99	2.644	2.7	2	69 28 42.6	10.35	2.7	2
576	B. A. C. 6933 . . .	6.5	20 4 17.71	+ 2.643	2.7	3	69 27 49.9	+ 10.35	2.7	3
577	Anonymous . . .	. .	5 3.58	3.362	2.7	3	104 4 25.1	10.41	2.7	3
578	Anonymous . . .	. .	5 27.33	3.358	2.7	1	104 3 21.5	10.44	2.7	1
579	α^2 CAPRICORNI. . . .	3.3	10 57.12	3.333	2.6	7	102 56 21.8	10.86	2.6	5
580	B. A. C. 6992 . . .	6.5	13 35.00	3.375	2.7	3	105 11 12.2	11.04	2.7	3
581	β Capricorni	3.0	20 13 49.05	+ 3.375	2.7	3	105 11 2.0	+ 11.06	2.7	3
582	Anonymous . . .	. .	15 45.43	2.685	2.6	1	70 44 36.0	11.20	2.6	1
583	π CAPRICORNI. . . .	5.0	19 59.54	3.441	2.6	10	108 37 45.8	11.47	2.7	7
584	O. Arg. S. 20533 . .	7.0	21 33.55	3.498	2.7	3	111 19 25.0	11.62	2.7	3
585	B. A. C. 7049 . . .	6.0	22 0.57	3.530	2.7	3	112 48 49.8	11.65	2.7	3

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			h. m. s.	s.			° ′ ″	″		
586	B. A. C. 7077 . . .	6.0	20 25 14.98	+ 3.583	2.6	3	115 22 27.8	+ 11.88	2.6	3
587	B. A. C. 7083 . . .	6.0	25 49.86	1.978	2.7	3	44 30 20.0	11.92	2.7	3
588	ε DELPHINI	4.0	27 5.87	2.866	2.6	11	79 7 48.5	11.99	2.6	8
589	τ^1 Capricorni	6.0	30 10.44	+ 3.368	2.7	3	105 35 18.9	12.22	2.7	3
590	GROOMBRIDGE 3241 .	6.7	30 32.47	− 0.208	2.6	1	17 54 8.1	12.22	2.6	1
591	GROOMBRIDGE 3241, S.P.	6.7	20 30 32.69	− 0.208	2.2	1	17 54 5.9	+ 12.22	2.2	1
592	τ^2 Capricorni	5.0	32 6.86	+ 3.362	2.5	3	105 24 9.5	12.70	2.6	4
593	α CYGNI	1.7	37 4.10	2.044	2.3	13	45 10 33.8	12.69	2.2	12
594	Anonymous . . .	. .	37 21.55	3.348	2.7	3	55 0 4.3	12.71	2.7	4
595	17 Capricorni	6.0	38 44.65	3.488	2.6	3	111 58 39.8	12.81	2.6	3
596	B. A. C. 7198 . . .	6.0	20 40 22.68	+ 1.982	2.7	3	43 10 0.4	+ 12.92	2.7	3
597	Weisse 1373 . . .	8.0	42 4.28	2.389	2.7	4	56 5 42.0	13.03	2.7	4
598	XX, 14	. .	42 57.75	3.554	2.8	1	115 27 11.1	13.09	2.8	1
599	B. A. C. 7237 . . .	6.0	45 30.60	3.524	2.6	2	114 15 39.7	13.26	2.6	2
600	μ AQUARII	4.7	45 44.92	3.240	2.5	6	99 27 42.4	13.25	2.5	5
601	19 Capricorni	6.0	20 47 33.72	+ 3.403	2.6	3	108 24 24.2	+ 13.39	2.6	3
602	XX, 19	7.0	49 10.85	3.571	2.8	1	116 46 56.0	13.50	2.8	1
603	ν CYGNI	4.0	52 24.09	+ 2.234	2.4	4	49 19 29.1	13.72	2.6	1
604	12-YEAR CAT., 1879, S.P.	6.0	53 19.19	− 2.495	2.3	1	9 55 47.9	13.71	2.3	1
605	9 Aquarii	6.0	54 4.98	+ 3.314	2.7	2	104 1 42.5	13.81	2.7	2
606	η Capricorni	5.5	20 57 7.05	+ 3.427	2.7	3	110 21 34.5	+ 14.00	2.7	3
607	θ Capricorni	4.0	58 44.95	3.376	2.5	3	107 44 24.0	14.10	2.5	3
608	61^1 CYGNI	5.3	21 1 9.44	2.687	2.6	1	51 52 44.7	17.50	2.6	1
609	χ Capricorni	6.0	1 13.59	3.445	2.8	3	111 42 22,7	14.26	2.8	4
610	27 Capricorni	6.0	2	. .	. .	.	111 4 8.9	14.32	2.8	1
611	ζ CYGNI	3.0	21 7 29.37	+ 2.550	2.4	17	60 17 49.4	+ 14.58	2.5	14
612	φ Capricorni	6.0	8 20.62	3.425	2.8	3	111 10 53.4	14.69	2.8	3
613	34 Vulpeculæ	5.5	15 17.26	2.693	2.7	3	66 40 55.2	15.09	2.7	3
614	α CEPHEI	2.7	15 31.34	1.437	2.2	8	27 57 21.9	15.11	2.2	7
615	Anonymous . . .	. .	16 6.42	2.409	2.8	2	51 36 52.2	15.14	2.8	2
616	1 PEGASI	4.3	21 16 10.05	+ 2.774	2.0	1	70 44 32.3	+ 15.23	2.0	1
617	33 Capricorni	6.0	16 53.90	+ 3.414	2.8	3	111 23 40.5	15.19	2.8	3
618	B. A. C. 7430 . . .	6.0	17 16.34	−12.806	2.8	3	28 47 13.3	15.21	2.8	3
619	35 Capricorni	6.0	19 59.18	+ 3.415	2.9	2	111 44 55.0	15.36	2.9	2
620	Anonymous . . .	. .	20 33.91	3.414	2.9	1	111 43 32.9	15.40	2.9	1
621	Anonymous . . .	. .	21 24 44.66	+ 3.282	2.8	3	104 3 44.6	+ 15.63	2.8	3
622	β AQUARII	3.0	24 49.18	3.164	2.4	10	96 7 58.6	15.64	2.5	9
623	β CEPHEI	3.0	27 0.02	0.800	2.2	6	20 0 3.6	15.71	2.0	4
624	β CEPHEI, S. P. . . .	3.0	26 59.81	0.800	2.6	2	20 0 3.0	15.71	2.6	1
625	ε Capricorni	5.0	29 54.69	3.369	2.8	4	110 2 18.2	15.91	2.8	3

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			h. m. s.	s.			° ′ ″	″		
626	ξ AQUARII	4.7	21 30 56.22	+ 3.198	2.6	4	98 25 36.5	+ 15.94	2.6	3
627	B. A. C. 7524 . . .	6.5	32 37.03	2.429	2.9	2	51 15 29.8	16.05	2.9	2
628	γ Capricorni	4.0	32 59.82	3.320	2.8	3	107 14 21.2	16.07	2.8	3
629	B. A. C. 7528 . . .	5.5	33 3.27	2.786	2.8	3	70 18 39.9	16.07	2.8	3
630	κ Capricorni	5.0	35 30.58	3.350	2.8	3	109 26 55.1	16.20	2.8	3
631	ε PEGASI	2.3	21 37 53.97	+ 2.948	2.3	15	80 42 38.3	+ 16.33	2.3	15
632	c^1 Capricorni	6.0	38 10.75	3.204	2.9	3	99 40 9.3	16.34	2.9	3
633	λ Capricorni	5.5	39 38.65	3.235	2.8	3	101 57 17.2	16.41	2.8	3
634	δ Capricorni	3.0	39 58.51	3.302	2.8	3	106 42 25.7	16.43	2.8	3
635	11 CEPHEI	5.0	40 2.68	0.907	2.6	1	. . .	. .	. .	.
636	B. A. C. 7602 . . .	6.0	21 43 0.76	+ 2.476	2.8	2	51 38 14.9	+ 16.58	2.8	2
637	μ CAPRICORNI . . .	5.0	46 18.97	3.279	2.8	7	104 9 11.7	16.77	2.9	6
638	B. A. C. 7620 . . .	6.0	46 45.32	3.214	2.7	2	100 54 47.5	16.76	2.7	2
639	79 DRACONIS, S. P. . .	6.3	51 16.60	0.737	2.6	2	16 54 12.2	16.96	2.6	2
640	29^1 Aquarii	6.0	55 26.09	3.291	2.7	3	107 34 50.4	17.17	2.7	3
641	29^2 Aquarii	. .	21 55 26.37	+ 3.291	2.7	3	107 34 48.7	+ 17.17	2.7	3
642	α AQUARII	3.0	59 12.56	3.084	2.6	8	90 56 26.0	17.33	2.6	8
643	Weisse 1361 . . .	9.0	22 0 3.21	3.202	2.8	3	101 1 52.3	17.38	2.8	3
644	Schjellerup 9030 . .	9.3	1 51.39	3.222	2.9	3	100 15 51.7	17.45	2.9	3
645	Anonymous . . .	. .	8 25.01	3.168	2.8	4	98 41 12.5	17.73	2.8	4
646	42 Aquarii	6.0	22 9 56.68	+ 3.220	2.7	4	103 28 7.6	+ 17.79	2.7	4
647	θ AQUARII	4.3	10 4.71	3.170	2.7	6	98 25 10.8	17.78	2.7	6
648	Anonymous . . .	. .	13 0.24	3.160	2.8	3	98 19 22.0	17.91	2.8	3
649	ρ Aquarii	5.5	13 27.76	3.161	2.8	3	98 27 46.1	17.93	2.8	3
650	Anonymous . . .	. .	15 32.04	3.156	2.7	1	98 6 38.3	18.01	2.7	1
651	Anonymous . . .	. .	22 15 46.44	+ 3.156	2.7	3	98 6 5.8	+ 18.02	2.7	3
652	Anonymous . . .	. .	16 49.22	3.152	2.8	3	97 50 27.5	18.06	2.8	3
653	51 Aquarii	6.0	17 26.80	3.128	2.8	4	95 29 2.0	18.08	2.8	4
654	50 Aquarii	6.0	17 35.57	3.218	2.8	3	104 10 37.7	18.09	2.8	3
655	π AQUARII	4.7	18 44.44	3.065	2.8	2	89 16 17.0	18.13	2.8	2
656	Anonymous . . .	. .	22 21 13.50	+ 3.144	2.7	4	97 17 27.2	+ 18.22	2.7	4
657	B. A. C. 7835 . . .	6.5	23 10.75	3.202	2.8	3	103 34 11.1	18.29	2.8	3
658	Groombridge 3820, S. P.	5.7	23	. .	. .	.	4 32 14.8	18.29	2.8	1
659	η AQUARII	3.7	28 46.76	3.084	2.6	8	90 46 34.8	18.44	2.6	7
660	226 CEPHEI	5.3	30 1.17	1.083	2.9	1	14 25 59.0	18.52	2.9	1
661	κ Aquarii	5.0	22 31 7.57	+ 3.115	2.7	3	94 53 15.8	+ 18.57	2.7	3
662	ζ PEGASI	3.3	35 4.74	2.988	2.8	7	79 50 9.8	18.70	2.9	6
663	67 Aquarii	6.0	36 33.23	3.136	2.7	3	97 37 56.0	18.74	2.7	3
664	45 Pegasi	6.0	39 14.71	2.916	2.8	2	71 18 27.4	18.82	2.8	2
665	70 Aquarii	6.0	41 46.02	3.161	2.8	3	101 13 51.7	18.90	2.8	3

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Number.	Name of Star.	Magnitude.	Mean Right Ascension, 1872.0.	Annual Precession, 1872.	Mean year.	No. of obs.	Mean N. P. Distance, 1872.0.	Annual Precession, 1872.	Mean year.	No. of obs.
			h. m. s.	s.			° ′ ″	″		
666	B. A. C. 7953 . . .	6.0	22 42 18.73	+ 2.366	2.9	1	32 11 30.0	+ 18.91	2.9	1
667	τ^2 Aquarii	4.0	42 48.83	3.184	2.9	4	104 16 3.1	18.93	2.9	3
668	ι Cephei	3.7	45 8.42	2.118	2.9	1	24 28 21.1	18.85	2.9	1
669	ι Cephei, S. P. . . .	3.7	45 7.79	2.118	2.3	2	24 28 20.8	18.85	2.3	2
670	λ Aquarii.	4.0	45 56.20	3.131	2.7	5	98 15 35.3	19.07	2.7	4
671	α Piscis Australis . .	1.3	22 50 34.36	+ 3.329	2.6	14	120 17 59.5	+ 18.99	2.7	12
672	β Pegasi	2.0	57 33.80	2.886	2.8	1	62 36 39.8	19.32	2.8	1
673	α Pegasi	2.0	58 23.17	2.984	2.6	18	75 28 58.9	19.31	2.6	18
674	ϕ Aquarii.	4.5	23 7 41.59	3.108	2.6	3	96 44 18.9	19.54	2.6	3
675	O. Arg. S. 22712 . .	9.0	8 53.56	3.140	2.8	1	112 57 34.5	19.56	2.8	1
676	ψ^1 Aquarii	4.5	23 9 11.13	+ 3.123	2.9	3	99 47 6.3	+ 19.57	2.9	3
677	O. Arg. S. 22721 . .	8.5	9 48.62	3.189	2.9	1	111 52 55.4	19.58	2.9	1
678	χ^2 Aquarii	5.5	10 12.84	3.114	2.9	3	98 25 26.8	19.58	2.9	3
679	ψ^2 Aquarii	4.5	11 14.96	3.121	2.9	3	99 52 52.1	19.60	2.9	3
680	Anonymous . . .	. .	11 38.49	3.131	2.9	1	101 54 17.6	19.61	2.9	1
681	ψ^3 Aquarii	5.0	23 12 18.13	+ 3.122	2.9	3	100 18 36.5	+ 19.62	2.9	3
682	96 Aquarii	5.5	12 45.71	3.100	2.7	3	95 49 23.4	19.63	2.7	3
683	o Cephei, S. P. . . .	5.7	13 22.71	2.437	2.3	2	22 35 20.1	19.62	2.3	2
684	κ Piscium.	4.5	20 22.32	3.070	2.7	3	89 26 40.3	19.76	2.7	3
685	9 Piscium.	6.0	20 41.36	3.070	2.9	3	89 34 51.2	19.76	2.9	3
686	θ Piscium	4.3	23 21 28.58	+ 3.041	2.9	2	84 19 26.1	+ 19.75	2.9	2
687	16 Piscium.	6.0	29 51.42	3.068	2.8	4	88 36 27.5	19.88	2.8	4
688	ι Piscium	4.3	33 22.01	3.085	2.8	3	85 4 2.3	19.48	2.8	3
689	λ Piscium.	5.0	35 30.92	3.070	2.7	3	88 55.27.8	19.94	2.7	3
690	20 Piscium.	6.0	41 21.74	3.079	2.9	2	93 28 22.6	19.99	2.9	2
691	21 Piscium.	6.0	23 42 54.20	+ 3.072	2.8	4	89 38 2.8	+ 20.00	2.8	4
692	Groombridge 4163 .	7.0	48 37.84	2.849	2.9	2	16 18 7.2	20.00	2.9	2
693	27 Piscium.	5.5	52 7.23	3.141	2.7	3	94 15 57.5	20.04	2.7	3
694	ω Piscium	4.0	52 44.34	3.078	2.8	7	83 50 43.6	19.94	2.8	7
695	29 Piscium.	5.5	55 15.87	3.074	2.9	3	93 44 22.8	20.05	2.9	3
696	30 Piscium.	5.0	23 55 23.69	+ 3.075	2.9	3	95 43 31.6	+ 20.05	2.9	3
697	33 Piscium.	5.0	58 46.99	3.073	2.8	4	96 25 22.8	20.06	2.8	4

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RIGHT ASCENSIONS, NORTH POLAR DISTANCES, AND SEMI-DIAMETERS

OF THE

SUN, MOON, AND PLANETS;

DEDUCED FROM

OBSERVATIONS WITH THE TRANSIT CIRCLE,

AND COMPARED WITH

THE TABLES.

1872.

37——72

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RIGHT ASCENSIONS, NORTH POLAR DISTANCES, AND SEMI-DIAMETERS

OF THE

SUN, MOON, AND PLANETS.

SUN.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.	Corr'n to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.	Corr'n to Am. Eph.	Vertical Semi-diameter.	Corr'n to Am. Eph.
1872.			h. m. s.	s.	m. s.	s.		° ′ ″	″	′ ″	″
Jan. 2	S.	. .	18 50 49.06	— 0.08	1 11.20	+ 0.17					
5	F.	. .	19 4 1.65	— 0.08	1 10.84	— 0.04	. .	112 38 21.4	— 2.3	16 17.2	— 1.1
9	F.	. .	19 21 32.70	+ 0.26	1 10.58	— 0.03	. .	112 7 57.7	— 1.1	17.7	— 0.5
12	E.	. .	19 34 34.75	— 0.10	1 10.33	— 0.04	. .	111 40 37.3	+ 0.9	18.8	+ 0.7
18	S.	. .	. . . .	. .	. . .	. .	. .	110 34 37.6	— 0.8	15.8	— 1.9
20	E.	. .	20 8 52.16	+ 0.04	1 9.59	— 0.04	. .	110 9 31.0	+ 1.8	15.7	— 1.8
22	S.	. .	20 17 18.94	— 0.08	1 9.41	0.00	. .	109 42 47.0	— 2.7	16.0	— 1.3
25	F.	. .	20 29 53.45	+ 0.04	1 9.10	+ 0.02	. .	109 0 6.3	— 0.5	16.5	— 0.5
26	S.	. .	20 34 3.31	+ 0.03	1 8.91	— 0.06	. .	108 45 8.5	— 1.9	17.7	+ 0.8
29	F.	. .	. . . .	. .	. . .	. .	. .	107 58 16.4	— 4.1	16.1	— 0.4
30	S.	. .	20 50 34.77	+ 0.09	1 8.44	— 0.19	. .	107 42 4.0	— 0.7	15.6	— 0.7
Feb. 1	E.	. .	20 58 45.30	— 0.26	1 8.22	— 0.08	. .	107 8 34.8	— 2.1	16.4	+ 0.4
2	F.	. .	21 2 49.95	+ 0.16	1 8.06	— 0.12	. .	106 51 20.5	— 5.0	13.4	— 2.5
5	E.	. .	21 14 57.69	+ 0.03	1 7.80	— 0.03	. .	105 58 5.1	— 1.6	14.7	— 0.7
7	S.	. .	21 22 58.90	+ 0.02	1 7.60	+ 0.01	. .	105 21 10.5	— 0.5	12.8	— 2.2
14	F.	. .	21 50 38.21	+ 0.04	1 6.81	— 0.01	. .	103 4 6.1	+ 0.1	11.9	— 1.8
27	S.	. .	22 40 25.18	— 0.06	1 5.49	— 0.11	. .	98 23 57.5	0.0	10.0	— 0.9
Mar. 1	F.	. .	22 51 39.96	— 0.16	1 5.34	— 0.03	. .	97 15 41.0	— 9.0	9.4	— 0.8
6	S.	. .	23 9 15.42	— 0.15	1 4.94	— 0.04					
16	E.	. .	23 46 59.26	— 0.04	1 4.59	— 0.01	. .	91 24 37.5	— 0.1	6.0	— 0.2
21	E.	. .	0 5 11.93	— 0.03	1 4.51	+ 0.02	. .	89 26 7.6	— 1.5	4.6	— 0.3
28	E.	. .	0 30 37.90	— 0.10	1 4.38	— 0.09	. .	86 41 25.8	+ 0.1	2.0	— 1.0
April 2	E.	. .	0 48 49.28	— 0.04	1 4.52	— 0.02	. .	84 45 30.5	— 0.8	16 1.7	+ 0.2
4	Ha.	. .	0 56 6.88	+ 0.06	1 4.50	— 0.08	. .	83 43 48.9	+ 3.8	15 58.7	— 2.3
5	E.	. .	0 59 45.86	+ 0.01	1 4.57	— 0.04	. .	83 37 0.9	— 0.1	16 0.3	— 0.4
10	F.	. .	1 18 4.51	+ 0.14	1 4.75	— 0.04	. .	81 45 1.9	— 2.4	15 58.6	— 0.7
16	F.	. .	1 40 11.78	— 0.13	1 5.04	— 0.05					
17	E.	. .	1 43 54.24	— 0.11	1 5.12	— 0.02	. .	79 14 19.9	+ 0.1	56.9	— 0.6
22	F.	. .	2 2 32.62	— 0.05	1 5.56	+ 0.10	. .	77 31 53.7	— 0.5	57.8	+ 1.6
25	E.	. .	2 13 48.81	— 0.07	1 5.56	— 0.11	. .	76 32 51.8	+ 0.5	54.5	— 0.9
30	F.	. .	2 32 46.34	+ 0.06	1 6.02	— 0.02	. .	74 58 54.0	— 0.7	53.9	— 0.3
May 2	S.	. .	2 40 25.10	+ 0.04	1 6.15	— 0.04	. .	74 23 1.6	+ 0.8	52.8	— 0.9
3	E.	. .	2 44 15.33	+ 0.03	1 6.23	— 0.04	. .	74 5 24.8	— 2.0	53.6	+ 0.1
4	F.	. .	2 48 6.03	— 0.08	1 6.37	+ 0.02	. .	73 48 7.8	— 0.6	52.8	— 0.5
7	E.	. .	2 59 41.85	— 0.14	1 6.56	— 0.03	. .	72 57 49.6	— 0.9	52.7	+ 0.1
8	F.	. .	3 3 35.18	+ 0.08	1 6.62	— 0.06	. .	72 41 37.4	— 0.7	52.7	+ 0.3
11	E.	. .	3 15 17.87	+ 0.04	1 6.86	— 0.06	. .	71 54 46.5	+ 0.4	51.6	— 0.2
14	S.	. .	3 27 5.68	+ 0.04	1 7.16	— 0.01	. .	71 10 38.6	+ 0.6	50.4	— 0.8
20	F.	. .	3 50 56.33	+ 0.20	1 7.62	— 0.04	. .	69 51 4.0	— 1.8	48.7	— 1.4
23	S.	. .	4 2 58.64	+ 0.03	1 7.85	— 0.03	. .	69 15 53.2	— 1.4	48.6	— 0.3
27	E.	. .	4 19 9.05	— 0.09	1 8.12	— 0.04					
31	E.	. .	4 35 27.38	+ 0.03	1 8.38	— 0.02	. .	67 57 54.8	— 3.0	46.6	— 1.7
June 1	F.	. .	4 39 33.12	+ 0.10	1 8.38	— 0.07	. .	67 49 54.8	+ 0.5	47.5	— 0.7
11	S.	. .	5 20 48.50	+ 0.05	1 8.78	— 0.09	. .	66 50 56.6	— 0.7	46.9	— 0.2
12	E.	. .	5 24 57.30	— 0.06	1 8.83	— 0.06	. .	66 47 15.8	— 0.8	48.0	+ 1.0
13	F.	. .	5 29 6.44	+ 0.03	1 8.89	— 0.02	. .	66 43 59.3	— 1.1	46.2	— 0.7
21	F.	. .	6 2 21.74	+ 0.05	1 8.94	— 0.03	. .	66 32 41.4	+ 0.5	45.3	— 1.1
27	S.	II	6 27 17.14	+ 0.02	. . .	. .	. .	66 41 32.3	+ 1.3	45.1	— 1.1
28	E.	. .	6 31 25.85	— 0.07	1 8.76	— 0.11	. .	66 44 25.7	+ 0.2	45.3	— 0.9
July 1	S.	. .	6 42 51.22	+ 0.08	1 8.60	— 0.16					
2	E.	. .	6 47 58.91	— 0.16	1 8.67	— 0.05	. .	67 0 5.2	— 1.8	48.2	+ 2.1
3	S.	. .	6 52 6.75	+ 0.02	1 8.70	— 0.03	. .	67 5 3.5	+ 0.5	45.6	— 0.5
5	S.	. .	7 0 21.18	+ 0.05	1 8.55	— 0.03	. .	67 16 8.5	+ 1.8	15 45.7	— 0.4

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SUN.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.	Corr'n to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.	Corr'n to Am. Eph.	Vertical Semi-diameter.	Corr'n to Am. Eph.
1872.			h. m. s.	s.	m. s.	s.		° ′ ″	″	′ ″	″
July 6	E.	. .	7 4 27.58	— 0.22	1 8.50	— 0.03	. .	67 22 15.1	+ 0.9	15 47.0	+ 0.8
9	S.	. .	7 16 45.68	+ 0.16	1 8.28	— 0.09	. .	67 42 57.7	+ 0.1	45.5	— 0.7
18	E.	. .	7 52 13.34	— 0.04	1 7.80	— 0.04	. .	69 5 32.3	+ 2.0	46.7	— 0.1
19	F.	. .	7 57 13.98	+ 0.14	1 7.63	— 0.05	. .	69 16 30.5	+ 1.2	46.3	— 0.5
22	E.	. .	8 9 11.86	— 0.04	1 7.36	— 0.08	. .	69 51 30.9	0.0	47.8	+ 0.7
27	F.	. .	8 28 57.37	+ 0.14	1 7.03	+ 0.01	. .	70 56 34.6	+ 0.8	47.5	— 0.1
30	E.	. .	8 39 41.36	— 0.12	1 6.68	— 0.08	. .	71 39 25.6	+ 0.9	48.5	+ 0.6
Aug. 3	E.	. .	8 56 12.13	— 0.06	1 6.38	— 0.03	. .	72 40 43.4	— 1.2	48.7	+ 0.3
7	E.	. .	9 11 33.32	— 0.01	1 6.10	+ 0.04	. .	73 46 34.3	— 0.7	. .	. .
14	E.	. .	9 38 2.32	— 0.16	1 5.38	— 0.11	. .	75 51 38.6	— 0.1	48.8	— 1.4
19	E.	. .	9 55 40.98	— 0.06	1 5.06	— 0.06	. .	77 27 45.5	— 2.1	50.3	— 1.1
30	S.	II.	10 37 2.84	— 0.08							
Sept. 20	S.	. .	11 52 40.99	— 0.05	1 4.00	— 0.08	. .	89 12 24.4	+ 0.5	15 58.7	0.0
Oct. 1	S.	. .	12 32 20.98	— 0.01	1 4.42	— 0.03	. .	93 29 35.8	+ 0.3	16 1.4	— 0.3
2	E.	. .	12 35 58.84	0.00	1 4.40	— 0.04	. .	93 52 53.2	+ 1.3	2.3	+ 0.3
3	F.	. .	12 39 37.00	— 0.01	1 4.48	— 0.01					
9	S.	. .	13 1 33.72	— 0.09	1 4.81	— 0.05					
10	E.	. .	13 5 14.72	— 0.02	1 4.87	— 0.06	. .	96 56 54.2	— 0.6	2.8	— 1.4
29	S.	. .	14 17 4.02	+ 0.10	1 6.70	0.00	. .	103 43 47.3	+ 2.6	9.6	+ 0.3
Nov. 4	F.	. .	14 40 39.32	0.00	1 7.33	— 0.06	. .	105 38 7.0	+ 0.2	10.4	— 0.4
7	E.	. .	14 50 38.00	0.00	1 7.68	— 0.07	. .	106 31 52.1	— 1.0	11.9	+ 0.4
8	F.	. .	14 56 39.28	+ 0.08	1 7.86	— 0.01	. .	106 49 17.0	+ 1.7	9.9	— 1.8
15	E.	. .	15 25 10.94	— 0.12	1 8.66	— 0.05	. .	108 42 26.3	— 0.1	12.3	— 1.0
19	E.	. .	15 41 47.62	— 0.14	1 9.08	— 0.08	. .	109 39 57.9	+ 0.6	15.0	+ 0.9
23	E.	. .	15 58 37.60	— 0.08	1 9.56	— 0.04	. .	110 31 46.5	— 0.1	14.8	0.0
27	E.	. .	16 16 40.11	— 0.15	1 9.96	— 0.04	. .	111 17 32.5	+ 0.7	15.8	+ 0.3
Dec. 2	F.	. .	16 37 14.32	— 0.15	1 10.44	— 0.01	. .	112 5 38.8	+ 0.7	15.7	— 0.5
4	S.	. .	16 45 56.48	— 0.03	1 10.56	— 0.04	. .	112 21 49.5	— 5.5	16.8	+ 0.3
6	F.	. .	16 54 40.82	+ 0.12	1 10.66	— 0.09	. .	112 36 26.7	— 0.3	15.1	— 1.7
10	F.	. .	17 12 14.42	— 0.23	1 11.00	— 0.01	. .	113 0 11.6	+ 1.6	16.5	— 0.8
13	E.	. .	17 25 28.98	— 0.09	1 11.10	— 0.03	. .	113 13 7.6	— 3.1	20.7	+ 3.1
14	E.	. .	17 29 54.41	— 0.08	1 11.11	— 0.06	. .	113 16 31.1	— 4.3	16 16.8	— 0.9

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MOON.

Date.	Mean Time of Transit of Center.	Observer.	Limb.	Apparent Right Ascension of Center.	Correction to Tables of— Peirce.	Correction to Tables of— Hansen.	Limb.	Geocentric North Polar Distance of Center.	Correction to Tables of— Peirce.	Correction to Tables of— Hansen.
1872.	h. m. s.			h. m. s.	s.	s.		° ′ ″	″	″
Jan. 13	3 14 48.7	F.	I	22 45 19.67	— 0.13	— 0.60				
16	5 36 57.6	E.	I	1 19 41.60	— 0.37	— 0.41	S.	86 32 10.7	+ 4.0	+ 4.9
17	6 20 44.7	F.	I	2 7 32.50	— 0.25	— 0.42	S.	81 14 45.3	+ 1.1	+ 1.6
21	9 23 20.4	F.	.	. . . .	. .	. .	S.	66 40 42.8	+ 0.4	+ 0.4
24	11 52 7.0	E.	I	8 7 25.09	— 0.20	— 0.51	N.	66 31 47.7	— 2.8	— 2.1
25	12 40 50.8	F.	II	9 0 13.44	+ 0.03	— 0.29				
26	13 28 4.6	S.	II	9 51 31.61	— 0.10	— 0.46				
30	16 26 11.8	S.	II	13 5 54.30	+ 0.12	— 0.52				
31	17 11 48.7	Ha.	II	13 55 35.27	+ 0.31	— 0.50				
Feb. 1	18 0 2.0	E.	II	14 47 52.98	+ 0.38	— 0.71	S.	102 57 30.2	+ 3.1	— 7.6
3	19 48 25.9	S.	II	16 44 27.87	+ 0.93	— 0.57				
15	5 44 14.2	S.	I	3 25 16.06	— 0.40	— 0.49	S.	73 36 12.5	+ 0.6	+ 1.8
16	6 30 32.2	Ha.	I	4 15 38.29	— 0.41	— 0.42	S.	69 55 46.7	— 1.9	— 1.7
21	10 35 51.4	E.	I	8 41 20.23	— 0.17	— 0.50	N.	67 49 35.0	— 0.4	— 1.2
22	11 23 53.2	F.	I	9 33 26.76	+ 0.03	— 0.38	N.	70 51 33.2	— 1.1	— 1.8
23	12 10 29.1	S.	II	10 24 6.93	+ 0.01	— 0.42				
25	13 40 20.4	E.	II	12 2 6.01	+ 0.09	— 0.35	S.	84 51 16.8	— 0.2	— 2.8
26	14 24 49.8	F.	II	12 50 39.32	+ 0.21	— 0.27	S.	90 27 25.9	+ 1.1	— 3.4
27	15 10 12.0	S.	II	13 40 5.51	+ 0.08	— 0.46	S.	96 8 3.9	+ 2.4	— 3.7
March 4	20 42 9.0	E.	II	9 36 36.38	— 0.01	— 0.76				
16	5 59 38.0	E.	I	5 38 59.06	— 0.61	— 0.58	S.	65 50 3.5	— 1.3	— 1.5
18	7 39 22.1	S.	I	7 26 52.63	— 0.54	— 0.47	N.	65 13 14.7	+ 1.4	— 0.1
19	18 38 49.1	Ha.	I	8 20 24.26	— 0.32	— 0.28	N.	66 43 51.2	+ 1.4	— 0.1
20	9 17 13.2	F.	.	. . . .	. .	. .	N.	69 22 39.7	+ 0.6	— 1.4
21	10 4 19.9	E.	I	10 4 3.95	— 0.15	— 0.35	N.	73 2 31.6	— 2.4	— 4.6
24	12 20 26.8	E.	I	12 32 22.91	+ 0.02	— 0.37	N.	88 24 41.2	+ 6.2	— 2.9
29	16 34 16.1	F.	II	17 6 36.60	+ 0.53	— 0.62				
31	31 18 35.5	Ha.	II	19 15 38.62	+ 0.34	— 0.96	N.	115 4 13.3	+ 0.2	— 0.1
April 1	19 35 21.9	F.	II	20 20 1.82	+ 0.54	— 0.72	N.	113 24 59.1	+ 1.1	+ 2.3
3	21 27 39.2	Ha.	II	22 20 30.67	+ 0.48	— 0.74				
10	2 13 31.8	F.	I	3 30 49.36	— 0.36	— 0.59	S.	72 40 53.7	— 3.0	— 1.3
13	4 40 56.3	E.	I	6 10 27.95	— 0.33	— 0.34				
16	7 9 32.2	S.	I	8 51 17.88	— 0.50	— 0.27				
17	7 56 45.8	E.	I	9 42 35.76	— 0.79	— 0.58	N.	71 10 56.8	+ 1.1	— 0.1
19	9 27 45.0	Ha.	I	11 21 43.03	— 0.06	— 0.13	N.	80 17 7.6	— 0.6	— 2.8
20	10 12 37.0	S.	I	12 10 39.01	+ 0.05	— 0.22	N.	85 47 40.1	+ 7.5	+ 4.1
21	10 58 10.8	E.	I	13 0 16.77	— 0.13	— 0.47	N.	91 39 32.7	+ 1.5	— 2.5
22	11 45 26.8	F.	I	13 51 37.13	+ 0.08	— 0.32	N.	97 36 24.4	+ 0.1	— 4.2
23	12 35 25.4	Ha.	II	14 45 40.51	— 0.01	— 0.46	S.	103 18 10.0	+ 1.6	— 2.8
25	14 16 16.8	E.		. . . .	. .	. .	S.	112 17 51.5	+ 2.3	— 3.3
29	18 29 6.3	E.	II	21 3 58.87	+ 0.54	— 0.74	N.	111 26 49.6	— 3.6	+ 0.3
May 11	3 23 20.8	E.	I	6 43 3.24	— 0.33	— 0.53				
16	7 20 16.8	S.	I	11 0 20.69	— 0.47	— 0.23	N.	77 55 14.8	— 2.2	— 2.1
19	9 34 29.0	E.	I	13 26 44.70	— 0.04	— 0.35	N.	94 42 23.2	+ 3.1	+ 0.9
20	10 22 55.4	F.	I	14 19 15.79	+ 0.07	— 0.41	N.	100 35 11.3	+ 0.9	— 2.5
21	11 15 6.2	Ha.	I	15 15 31.65	+ 0.21	— 0.37	N.	106 3 56.6	+ 1.5	+ 6.6
23	13 12 44.4	S.	II	17 21 22.30	+ 0.21	— 0.61				
26	16 22 25.2	E.	II	20 43 23.98	+ 0.45	— 0.86	N.	112 28 31.2	+ 0.1	+ 1.6
27	17 19 56.1	F.	II	21 45 0.79	+ 0.16	— 0.90	N.	108 48 23.2	— 1.3	+ 2.6
28	18 12 56.5	Ha.	II	22 42 6.46	+ 0.38	— 0.77	N.	103 54 24.8	— 4.8	+ 0.4
30	19 48 28.8	E.	II	0 25 47.58	— 0.15	— 1.02	N.	93 32 28.8	+ 2.2	+ 5.7
31	20 33 20.8	E.	II	1 14 43.54	+ 0.04	— 0.71	N.	86 43 10.7	— 1.8	+ 2.9
June 12	5 15 12.9	F.	I	10 41 23.39	— 0.24	— 0.23	N.	76 1 54.3	— 4.4	— 4.5
13	5 58 27.1	F.	I	11 28 41.34	— 0.08	— 0.07	N.	80 54 35.3	— 4.1	— 4.0
17	9 0 24.9	F.	I	14 46 55.11	+ 0.15	— 0.17	N.	103 24 33.7	— 1.5	— 2.5
18	9 54 10.2	Ha.	I	15 44 45.98	+ 0.18	— 0.27	N.	108 28 23.5	+ 0.6	— 1.0
26	17 46 17.3	Ha.	II	0 9 43.07	+ 0.33	— 0.71				
30	20 47 10.4	S.	II	3 26 52.13	— 0.41	— 1.08				
July 19	11 45 48.8	F.	I	19 38 56.22	— 0.09	— 0.56	S.	114 54 18.8	+ 2.6	+ 1.2
Aug. 7	2 37 8.4	E.	I	11 43 40.26	— 0.28	— 0.29				
17	11 31 45.7	Ha.	I	21 19 10.90	— 0.20	— 0.52	S.	110 28 52.6	+ 3.5	+ 1.9
25	18 25 11.0	Ha.	II	4 35 14.92	— 0.16	— 0.89	N.	67 48 46.6	— 0.4	+ 2.9

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MOON.

Date.	Mean Time of Transit of Center.	Observer.	Limb.	Apparent Right Ascension of Center.	Correction to Tables of—		Limb.	Geocentric North Polar Distance of Center.	Correction to Tables of—	
					Peirce.	Hansen.			Peirce.	Hansen.
1872.	h. m. s.			h. m. s.	s.	s.		° ′ ″	″	″
Sept. 14	10 14 4.6	F.	I	21 51 40.54	0.00	− 0.49	S.	108 11 15.3	+ 5.6	+ 3.0
18	13 40 43.7	F.	II	1 34 39.85	− 0.50	− 0.51				
Oct. 9	6 5 15.6	S.	I	19 20 44.56	− 0.35	− 0.46	S.	115 44 53.2	+ 4.6	+ 1.8
21	16 30 8.2	S.	II	6 34 38.49	− 0.19	− 0.70				
25	19 43 35.4	S.	II	10 4 23.68	− 0.30	− 0.57				
26	20 27 21.2	E.	II	10 52 13.16	− 0.64	− 0.62	S.	77 10 58.8	− 4.6	− 5.4
Nov. 4	2 58 3.4	F.	I	17 55 32.05	+ 0.02	− 0.35				
7	5 59 18.6	E.	.	. . . .	. .	. .	S.	111 34 11.2	+ 5.3	+ 6.6
8	6 54 24.4	F.	I	22 8 18.01	− 0.05	− 0.52	S.	107 4 55.1	− 0.2	− 0.9
12	10 9 13.4	F.	I	1 39 25.43	− 0.02	− 0.47	S.	83 8 24.7	+ 1.4	+ 2.0
16	13 27 18.0	F.	II	5 13 48.60	− 0.29	− 0.75	N.	65 29 48.6	+ 1.4	+ 1.9
18	15 11 52.6	S.	II	7 6 33.49	+ 0.15	− 0.40				
20	16 51 2.7	F.	II	8 53 52.01	− 0.12	− 0.58	S.	67 29 18.1	− 1.9	− 5.0
Dec. 4	3 53 2.5	S.	I	20 48 56.78	− 0.04	− 0.42				
6	5 43 38.2	S.	I	22 47 43.81	− 0.19	− 0.48	S.	103 20 38.8	+ 1.3	+ 2.2
7	6 33 12.3	S.	I	23 41 22.61	− 0.15	− 0.44	S.	97 26 27.4	− 0.4	+ 0.7
9	8 6 21.1	E.	I	1 22 39.89	− 0.25	− 0.58	S.	85 8 18.8	+ 1.2	+ 1.3
12	10 28 17.2	S.	.	3 36 48.98	0.00	− 0.49	.	69 45 51.9	+ 2.9	+ 2.4
13	11 18 52.1	E.	I	4 51 29.75	− 0.17	− 0.60	.	66 28 40.5	− 1.3	− 1.3

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MERCURY.

Date.	Observer.	Part observed.	Apparent Right Ascension of Center.	Corr'n to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Corr'n to Am. Eph.	Part observed.	Geocentric N. P. Distance of Center.	Corr'n to Am. Eph.	Vertical Semi-diameter.	Corr'n to Am. Eph.
1872.			h. m. s.	s.	s.	s.		° ′ ″	″	″	″
Jan. 19	E.	II	18 24 43.27	+ 0.22	. .	. .	C.	111 32 5.9	− 0.7		
24	F	II	18 45 2.10	+ 0.25	. .	. .	C.	112 5 17.9	0.0		
25	S	.	18 49 44.81	+ 0.29	. .	. .	C.	112 9 41.0	− 1.3		
29	S	.	19 10 10.05	+ 0.52	. .	. .	C.	112 17 48.1	− 1.1		
31	E.	.	19 21 7.75	+ 0.12	. .	. .	C.	112 15 32.3	− 1.5		
Feb. 13	F.	II	20 39 41.89	+ 0.28							
21	F.	II	21 31 30.29	+ 0.24	. .	. .	.	106 50 16.2	− 3.3		
March 21	E.	.	0 44 42.90	+ 0.03	. .	. .	.	85 7 58.4	+ 1.3		
April 2	F.	.	1 56 32.29	− 0.13	. .	. .	.	75 35 10.1	+ 2.6		
5	Ha.	.	2 8 27.80	− 0.05	. .	. .	.	74 6 30.1	+ 1.7		
10	F.	I	2 20 50.66	+ 0.01	. .	. .	S.	72 42 24.7	+ 1.8		
May 7	F.	II	1 52 17.57	− 0.14	. .	. .	N.	81 2 29.2	− 1.1		
27	F.	II	2 48 12.25	− 0.01	. .	. .	N.	77 3 13.3	+ 0.6		
30	E.	.	. . .	. .	. .	. .	C.	75 35 51.0	− 0.6		
31	E.	II	3 9 19.80	− 0.13	. .	. .	.	75 5 12.4	− 0.3	2.6	−0.8
June 10	S.	.	4 16 42.31	+ 0.13	. .	. .	.	69 45 21.3	− 1.5		
11	E.	II	4 24 39.06	− 0.14	. .	. .	N.	69 15 7.8	+ 1.1		
12	E.	II	4 32 49.30	− 0.12	. .	. .	.	68 45 50.5	+ 0.7		
July 5	S.	.	7 54 33.77	− 0.09	. .	. .	C.				
30	E.	I	10 25 39.37	− 0.27	. .	. .	.	81 3 52.0	− 0.6		
Aug. 3	E.	I	10 39 49.76	− 0.22	. .	. .	N.	83 15 23.1	− 1.2		
7	E.	I	10 50 53.18	− 0.21	. .	. .	N.	85 12 4.9	− 2.3		
19	E.	I	11 0 46.18	− 0.35							
Nov. 7	E.	I	15 51 48.01	− 0.09	. .	. .	.	112 0 18.5	+ 4.5		
15	E.	I	16 41 3.59	+ 0.11	. .	. .	.	114 34 0.0	− 0.7		
23	E.	I	17 27 46.22	− 0.05	. .	. .	.	115 45 0.9	+ 3.8		
Dec. 4	S.	.	18 10 42.62	+ 0.22	. .	. .	C.				

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VENUS.

Date.	Observer.	Part obs'd.	Apparent Right Ascension of Center.	Corr'n to Am. Eph.	Correction to Le Verrier's Tables.	Sid. Time of Transit of Semi-diam.	Corr'n to Am. Eph.	Part obs'd.	Geocentric N. P. Distance of Center.	Corr'n to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Corr'n to Am. Eph.
1872.			h. m. s.	s.	s.	s.	s.		° ′ ″	″	″	″	″
Jan. 1	S.	II	15 39 46.58	+ 0.13	— 0.01								
8	F.	II	16 12 40.46	+ 0.21	+ 0.09	. .	. .	.	108 30 37.2	+ 1.0	+ 0.5	10.7	+ 1.9
19	E.	II	17 6 31.65	+ 0.02	— 0.05	. .	. .	S.	110 40 13.0	+ 2.0	+ 1.0		
24	F.	II	17 31 43.93	+ 0.08	— 0.03	. .	. .	.	111 19 5.6	+ 1.0	— 0.4	7.6	— 0.6
31	E.	II	18 7 33.97	— 0.32	. .	. .	. .	.	111 49 39.4	+ 2.1	+ 0.5	6.7	— 1.2
Feb. 21	F.	II	19 56 7.62	+ 0.09	+ 0.01	. .	. .	.	110 20 22.2	+ 2.1	0.0	7.4	+ 0.4
25	F.	II	20 16 31.32	+ 0.08	+ 0.01	. .	. .	.	109 32 50.6	+ 1.5	— 0.7	8.1	+ 1.3
Mar. 15	E.	II	20 50 24.01	+ 0.18	+ 0.15	. .	. .	N.	103 52 42.3	+ 2.2	+ 0.3		
27	E.	II	22 46 52.74	+ 0.09	+ 0.08	. .	. .	N.	99 1 52.3	+ 2.7	+ 1.2		
Apr. 9	F.	II	23 46 14.81	+ 0.21	+ 0.23	. .	. .	N.	93 6 34.6	+ 0.7	— 0.5		
16	E.	.	0 17 47.60	+ 0.11	+ 0.10	0.56	+ 0.19	.	89 46 34.9	+ 1.2	+ 0.8	5.8	+ 0.2
23	S.	II	0 49 18.94	+ 0.06	+ 0.09								
29	F.	II	1 16 29.31	+ 0.03	+ 0.05	. .	. .	,	83 35 15.3	— 1.0	— 1.2	5.2	— 0.2
May 2	E.	II	1 30 10.51	+ 0.07	+ 0.10	. .	. .	N.	82 11 35.8	— 6.0	— 6.1	5.7	+ 0.3
6	E.	II	1 48 33.49	— 0.12	— 0.08	. .	. .	N.	80 22 33.9	— 0.8	— 0.8	5.3	0.0
7	F.	II	1 53 11.02	— 0.08	— 0.03	. .	. .	.	79 55 48.1	+ 0.5	+ 0.5	5.1	— 0.2
10	E.	II	2 7 8.02	— 0.11	— 0.08	. .	. .	.	78 36 49.1	— 0.2	+ 0.3	4.6	— 0.7
27	F.	I.	3 28 51.14	— 0.04	— 0.02	. .	. .						
30	E.	.	3 43 48.94	+ 0.02	+ 0.04	. .	. .	.	71 5 12.8	— 0.8	+ 0.2	5.7	+ 0.6
31	F.	.	3 48 50.36	— 0.08	— 0.05	0.38	+ 0.02	.	70 47 4.1	+ 0.5	+ 1.6	5.4	+ 0.3
June 11	E.	.	4 45 17.99	— 0.12	— 0.15	0.33	— 0.03	.	68 2 57.5	+ 0.1	+ 1.5	2.9	— 2.1
20	F.	.	5 32 50.13	— 0.06	— 0.09	0.34	— 0.02	.	66 43 24.3	— 0.8	+ 0.8	4.4	— 0.6
Aug. 7	E.	.	9 37 59.29	+ 0.12	— 0.01	0.40	+ 0.05	.	74 24 25.8	0.0	+ 0.1	6.5	+ 1.5
14	E.	I	10 11 38.00	+ 0.11	— 0.02	. .	. .	.	77 17 43.7	— 1.7	— 1.8	4.4	— 0.6
19	E.	I	10 35 9.61	— 0.07	— 0.20	. .	. .	.	79 32 2.4	+ 0.2	— 0.4	4.9	— 0.2
Oct. 2	E.	I	13 55 50.47	— 0.06	— 0.14	. .	. .	.	101 26 14.3	+ 5.8	+ 3.6	4.8	— 0.7
10	E.	I	14 33 44.98	— 0.13	— 0.22	. .	. .	N.	105 2 9.3	+ 4.2	+ 2.3		
Nov. 7	E.	I	16 56 5.09	— 0.30	— 0.36	. .	. .	.	113 50 29.6	+ 3.5	+ 1.8	7.2	+ 1.1
8	F.	I	17 1 25.87	— 0.10	— 0.10	. .	. .	N.	114 0 38.5	+ 2.2	+ 0.5		
15	E.	I	17 39 7.24	— 0.21	— 0.23	. .	. .	.	114 51 51.3	+ 4.2	+ 3.1	8.2	+ 1.9
23	E.	I	18 22 29.34	— 0.33	— 0.36	. .	. .	.	115 5 57.9	+ 5.0	+ 4.1	6.2	— 0.3
Dec. 2	F.	I	19 10 58.55	— 0.12	— 0.14	. .	. .	.	114 24 25.7	+ 2.3	+ 1.7	6.6	— 0.2
6	F.	I	19 32 12.86	— 0.06	+ 0.04	. .	. .	N.	113 46 56.9	— 1.3	— 1.7		
10	F.	I	19 53 9.54	— 0.23	— 0.21	. .	. .	.	112 58 26.5	— 0.3	— 0.5	7.9	+ 0.8
13	E.	I	20 8 38.97	— 0.30	— 0.27	. .	. .	.	112 15 5.4	— 1.1	— 1.2	6.7	— 0.5
14	F.	I	20 13 46.13	— 0.25	— 0.21	. .	. .	.	111 59 24.3	+ 0.8	+ 0.8	7.8	+ 0.6

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JUPITER.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.	Corr'n to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.	Corr'n to Am. Eph.	Vertical Semi-diameter.	Corr'n to Am. Eph.
1872.			h. m. s.	s.	s.	s.		° ′ ″	″	″	″
Jan. 17	F.	.	7 46 11.06	+ 0.97	1.72	+ 0.03	.	68 20 5.9	+ 6.6	21.2	— 0.9
24	E.	.	7 42 16.62	+ 0.95	1.71	+ 0.02	.	68 9 33.0	+ 6.1	23.6	+ 1.6
Feb. 21	E.	.	7 29 46.80	+ 0.94	1.60	— 0.02	.	67 38 41.8	+ 4.4	20.2	— 0.8
22	F.	.	7 29 29.00	+ 1.02	1.68	+ 0.07	.	67 38 1.9	+ 5.8	22.0	+ 1.0
23	S.	.	7 29 12.03	+ 1.17							
26	F.	.	7 28 25.25	+ 1.20	1.72	+ 0.12	.	67 35 35.4	+ 6.2	21.3	+ 0.5
March 5	F.	.	7 26 54.94	+ 1.02	1.54	— 0.02	.	67 32 8.5	+ 5.7	21.1	+ 0.9
6	S.	.	7 26 47.41	+ 0.90	1.59	+ 0.03	.	67 31 52.4	+ 7.3	22.8	+ 2.5
12	E.	.	7 26 19.04	+ 0.92	1.59	+ 0.05	.	67 30 41.9	+ 5.3	20.4	+ 0.5
16	E.	.	7 26 16.96	+ 0.92	1.54	+ 0.02	.	67 30 33.5	+ 6.7	19.0	— 0.7
19	Ha.	.	7 26 24.25	+ 1.07	1.46	— 0.04	.	67 30 44.4	+ 6.8	19.3	— 0.2
28	E.	.	7 27 29.15	+ 0.96	1.50	+ 0.05	.	67 32 49.2	+ 6.0	19.2	+ 0.3
29	F.	.	7 27 40.38	+ 1.03	1.51	+ 0.06	.	67 33 10.4	+ 4.8	20.0	+ 1.1
April 2	E.	.	7 28 32.52	+ 0.85	1.44	+ 0.01					
13	E.	.	7 31 57.16	+ 0.82	1.34	— 0.04	.	67 42 8.6	+ 4.5	17.6	— 0.4
Nov. 20	F.	.	10 19 19.90	+ 1.32	1.36	+ 0.07	.	77 52 0.2	+ 3.8	20.0	+ 2.2

SATURN.

May 26	S.	.	19 29 20.02	— 1.08	0.62	— 0.03	.	111 35 12.1	— 0.9	10.2	+ 1.8
July 19	F.	.	19 14 30.26	— 1.48	0.68	+ 0.01	.	112 8 27.8	— 3.0	11.2	+ 2.5
30	E.	.	19 11 15.49	— 1.44	0.65	— 0.01	.	112 15 10.3	— 1.7	10.2	+ 1.6
31	F.	.	19 10 58.85	— 1.44	0.71	+ 0.05	.	112 15 43.3	— 2.8	10.9	+ 2.3
Aug. 3	E.	.	19 10 9.65	— 1.64	0.67	+ 0.01	.	112 17 24.7	— 1.7	11.0	+ 2.4
26	S.	.	19 5 15.90	— 1.43	0.66	+ 0.02	.	112 27 36.5	+ 0.2	9.9	+ 1.5
30	S.	.	19 4 42.74	— 1.41	0.66	+ 0.02	.	112 28 50.8	— 0.3	9.6	+ 1.3
Sept. 3	S.	.	19 4 15.73	— 1.43	0.62	— 0.02	.	112 29 53.3	— 2.4	9.8	+ 1.5
18	F.	.	19 3 32.39	— 1.48	0.67	+ 0.04	.	112 32 28.6	+ 1.5	9.6	+ 1.5
21	S.	.	19 3 35.05	— 1.43	0.63	0.00	.	112 32 39.7	— 0.2	9.4	+ 1.4

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URANUS.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.	Corr'n to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.	Corr'n to Am. Eph.	Vertical Semi-diameter.	Corr'n to Am. Eph.
1872.			h. m. s.	s.	s.	s.		° ′ ″	″	″	″
Jan. 5	F.	.	8 8 17.17	+ 1.36	0.17	+ 0.05	.	69 12 57.6	+ 14.1	2.7	+ 1.8
17	F.	.	8 6 8.34	+ 1.39	0.17	+ 0.05	.	69 6 22.2	+ 15.7		
24	E.	.	8 4 51.88	+ 1.31	. .	. .	.	69 2 33.3	+ 16.5		
25	F.	.	8 4 41.02	+ 1.30	0.18	+ 0.06	.	69 2 0.9	+ 15.4		
Feb. 14	F.	.	8 1 16.30	+ 1.32	0.19	+ 0.07	.	68 52 5.8	+ 14.6		
22	F.	.	8 0 5.76	+ 1.11	0.16	+ 0.04	.	68 48 51.0	+ 16.0		
26	F.	.	7 59 34.21	+ 1.21	0.18	+ 0.07	.	68 47 23.5	+ 15.2	1.6	− 0.3
Mar. 5	F.	.	7 58 38.82	+ 1.11	0.16	+ 0.05	.	68 44 53.9	+ 14.0		
6	S.	.	7 58 32.79	+ 1.17	0.18	+ 0.07	.	68 44 39.8	+ 16.0	2.0	+ 0.1
12	E.	.	7 58 0.08	+ 0.95	0.18	+ 0.07	.	68 43 15.3	+ 15.6		
16	E.	.	7 57 42.57	+ 1.05	0.17	+ 0.06					
20	F.	.	7 57 28.27	+ 0.96	0.23	+ 0.12	.	68 41 56.6	+ 15.6		
21	E.	.	7 57 25.34	+ 1.05	0.26	+ 0.15	.	68 41 48.3	+ 14.4		
24	E.	.	7 57 17.56	+ 1.00	0.16	+ 0.05	.	68 41 32.1	+ 15.6		
27	Ha.	C.	7 57 11.94	+ 1.12	. .	. .	.	68 41 19.3	+ 14.7		
28	E.	.	7 57 10.48	+ 1.13	0.17	+ 0.06	.	68 41 18.3	+ 16.3		
April 2	E.	.	7 57 6.36	+ 1.04	0.20	+ 0.09	.	68 41 12.4	+ 14.3		
10	F.	.	7 57 11.72	+ 1.06	0.15	+ 0.04	.	68 41 38.5	+ 13.7		
13	E.	.	7 57 17.39	+ 0.98	0.20	+ 0.09	.	68 41 59.4	+ 14.1		

NEPTUNE.

Sept. 18	F.	.	1 37 45.85	+ 0.08	. .	. .	.	81 43 9.3	+ 1.8		
Nov. 4	F.	.	1 33 2.05	− 0.09	. .	. .	.	82 11 0.0	+ 0.9		
7	E.	.	1 32 44.43	− 0.19							
8	F.	.	1 32 38.86	− 0.20	. .	. .	.	82 13 9.7	− 0.4		
12	F.	.	1 32 16.33	− 0.11	. .	. .	.	82 15 15.7	+ 0.7		
15	E.	.	1 32 0.27	0.00	. .	. .	.	82 16 42.3	− 2.0		
23	E.	.	1 31 20.28	− 0.04	. .	. .	.	82 20 21.7	+ 0.2		
27	E.	.	1 31 2.24	− 0.07	. .	. .	.	82 21 58.0	+ 0.4		
28	F.	.	1 30 58.15	− 0.11	. .	. .	.	82 22 21.1	+ 1.0		

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SMALL PLANETS.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time corrected for Aberration.	Apparent Right Ascension of Center.	Corr'n to Ephem.	Geocentric N.P. Distance of Center.	Corr'n to Ephem.	NOTES.
PALLAS, ②.								
1872.		h. m.	h. m.	h. m. s.	s.	° ′ ″	″	
June 11	S.	12 11.1	17 52.7	17 34 31.73	— 0.52	64 49 46.2	— 0.1	
JUNO, ③.								
April 23	Ha.	12 1.5	17 44.4	14 11 42.21	+ 1.65	90 5 9.1	+ 3.9	
ASTRÆA, ⑤.								
June 11	S.	11 18.9	17 6.2	16 42 9.17	— 7.15	104 29 23.6	— 13.8	
FLORA, ⑧.								
May 4	F.	12 20.3	18 9.4	15 13 57.04	+ 5.94	98 57 9.7	+ 35.1	
POLYHYMNIA, ㉝.								
April 13	E.	11 22.5	18 3.5	12 53 13.19	+ 4.52	96 7 40.0	+ 26.9	
ELPIS, ㊾.								
May 4	F.	11 23.5	17 8.5	14 17 2.35	+ 0.60	93 45 25.9	— 1.2	
AUSONIA, ㊸.								
Feb. 26	F.	11 27.2	17 16.2	9 52 38.56	+ 0.32	75 45 15.5	+ 5.0	
March 5	F.	10 48.1	16 37.0	9 44 53.30	— 0.01	75 26 17.0	+ 3.2	
ASIA, ㊼.								
April 10	F.	11 15.7	17 4.9	12 34 26.00	— 3.13	95 14 2.9	— 13.1	
11	S.	11 10.9	17 0.1	12 33 35.30	— 2.94	95 5 50.8	— 13.3	
13	E.	11 1.3	16 50.5	12 31 55.31	— 2.96	94 49 38.1	— 12.9	

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DECLINATIONS OF THE MOON

FROM

OBSERVATIONS WITH THE MURAL CIRCLE.

MOON.

Date.	Mean Time of Transit of Center.	Observer.	Limb.	Apparent Right Ascension of Center.	Correction to Tables of—		Observer.	Limb.	Geocentric Declination of Center.	Correction to Tables of—	
					Peirce.	Hansen.				Peirce.	Hansen.
1872.	h. m.			h. m. s.	s.	s.			° ′ ″	″	″
Jan. 22	10 12.52	.	.	. . . .	. .	. .	Y.	N.	+ 24 33 52.4	— 3.3	— 3.2
Feb. 19	8 56.76	.	.	. . . .	. .	. .	Y.	N.	+ 24 52 10.1	— 1.3	— 1.9
Mar. 19	8 28.81	.	.	. . . .	. .	. .	Y.	N.	+ 23 16 14.0	— 3.7	— 5.2
21	10 4.35	.	.	. . . .	. .	. .	Y.	N.	+ 16 57 30.0	— 4.0	— 6.2
Apr. 17	7 56.77	.	.	. . . .	. .	. .	Y.	N.	+ 18 49 7.6	— 3.3	— 4.5
19	9 27.74	.	.	. . . .	. .	. .	Y.	N.	+ 9 42 55.3	— 3.3	— 5.5
22	11 45.45	.	.	. . . .	. .	. .	Y.	N., S.	— 7 36 21.9	— 2.5	— 7.8
May 21	11 15.10	.	.	. . . .	. .	. .	Y.	N.	— 16 3 52.1	— 2.9	— 6.8
June 18	9 54.17	.	.	. . . .	. .	. .	Y.	N.	— 18 28 21.3	— 1.6	— 3.3
Sept. 14	10 14.07	.	.	. . . .	. .	. .	Y.	S.	— 18 11 13.4	— 3.6	— 6.3
Oct. 15	11 29.24	.	.	. . . .	. .	. .	Y.	N., S.	+ 3 17 24.5	+ 4.7	+ 4.7
Nov. 9	7 46.07	.	.	. . . .	. .	. .	Y.	S.	— 11 37 20.0	— 0.4	+ 0.1
Dec. 13	11 18.88	.	.	. . . .	. .	. .	Y.	S.	+ 23 31 16.3	+ 0.9	+ 0.8

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METEOROLOGICAL OBSERVATIONS

MADE AT THE

UNITED STATES NAVAL OBSERVATORY

DURING

THE YEAR 1872.

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INTRODUCTION.

The meteorological department, during 1872, was under the charge of Prof. J. R. Eastman, U. S. N., who made a daily examination of all the records and a monthly inspection of all the instruments in use. The observations were made at 0^h, 3^h, 6^h, 9^h, 12^h, 15^h, 18^h, and 21^h, Washington civil time, by the observatory watchmen, Messrs. T. Hays, D. Horrigan, and N. Cahill, who have acquired such a degree of skill as insures a reasonable accuracy in their work.

METEOROLOGICAL INSTRUMENTS.

Standard Barometer.—This barometer was made by James Green, of New York, and is only used as a standard by which the Newman barometer is occasionally tested. Drawings and a description of this instrument will be found in the volume of Washington Observations for 1862.

Newman Barometer.—The barometer in daily use was made by Newman, and is mounted against the northern wall of the northwest room on the first floor of the observatory. The barometer is mounted with the usual adjustments at the top and bottom, and is attached by heavy brackets to a substantial mahogany board, which is firmly secured to the wall. The cistern is 103 feet above the mean half-tide of the Potomac River. The cistern and tube are of glass; the internal diameter of the former being 3.0 inches, and of the latter 0.532 inch.

The scale is attached to a brass rod having the usual adjustment to the surface of the mercury in the cistern. It is silvered and divided to 0.05 inch, but by means of a vernier may be read to 0.002 inch. The temperature of the mercury in the cistern is determined by a small ivory-scale thermometer, the bulb of which is constantly immersed in the mercury. The observations with this instrument in 1872, as printed in this volume, have received the constant correction of $+0.005$ inch, determined in 1864, and have also been reduced to $32^\circ.0$ Fahrenheit.

Dry-Bulb Thermometer.—This is a mercurial thermometer by Green, with a bulb 1.5 inches long and 0.2 inch in diameter. The scale is of glass, 12.0 inches long, 0.8 inch wide, and 0.1 inch thick. It is is divided to half-degrees from $-30^\circ.0$ to $+125^\circ.0$ Fahrenheit. Several independent tests, in the spring of 1868, indicated that the *freezing-point* had changed its position on the scale since 1863.

In 1871 the dry-bulb, the maximum, and the minimum thermometers were compared with the Kew standard thermometer, No. 462, belonging to Professor Eastman. No appreciable errors were detected in the maximum and minimum thermometers. A correction of $-0^\circ.9$ was deduced for the dry-bulb thermometer, and each observation published in this volume has been corrected by this quantity.

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Wet-Bulb Thermometer.—This instrument is similar to the preceding in materials, construction, and dimensions. Its scale extends from — 35°.0 to + 115°.0 Fahrenheit. The bulb is covered with soft, fine linen, kept moist by the capillary action of a bundle of fine, linen fibers that communicate with water in a bird-glass placed close beside it. The linen on the bulb is occasionally changed before its free action is impaired by dust.

Maximum Thermometer.—This is a mercurial thermometer, with a bulb 1.5 inches long and 0.2 inch in diameter. The scale is of glass, 12.0 inches long, 0.8 inch wide, and 0.1 inch thick, and is graduated to half-degrees from — 50°.0 to + 120°.0 Fahrenheit. At a point a short distance above the bulb, the internal diameter of the tube is so reduced that, while with the increase of temperature the mercury passes freely, with the least decrease of temperature the column of mercury is broken at the point of contraction, if the instrument is nearly horizontal, and the top of the column marks the highest temperature.

The top of the scale is attached by a metallic clamp to a pivot, around which the thermometer revolves freely in a vertical plane. This pivot is secured to a walnut board fixed to a post, about three feet above the ground, and the thermometer is placed nearly horizontal by resting the scale near the bulb on a wooden pin in the board.

After each observation the instrument is adjusted by removing the pin and allowing the thermometer to swing freely from the pivot at the top of the scale, which motion is generally sufficient to reunite the column of mercury.

Minimum Thermometer.—This is a transparent spirit-thermometer, with a spherical bulb about 0.5 inch in diameter. The scale is of silvered brass, 12 inches long, 1.0 inch wide, and 0.06 inch thick, and is graduated to degrees from — 67°.0 to + 131°.0 Fahrenheit. The registering index is a short, fine steel wire inclosed in a delicate blue-glass cylinder, with a small knob at the extremity farthest from the bulb of the thermometer.

This cylinder is drawn toward the bulb by the decrease of temperature; but when the temperature increases, the spirit flows through and around the cylinder, which remains at rest at the lowest point reached by the liquid. The end of the knob on the cylinder indicates the lowest point reached by the column of liquid. After each observation, the index is moved to the top of the column by means of a small magnet.

Solar Thermometer.—This thermometer (No. 13583) was made by L. Casella, of London, and consists of a blackened spherical bulb and its tube, inclosed within a bulb and cylinder of glass of the same form as the thermometer, but of about three times the diameter. The air has been exhausted from the inclosing bulb and cylinder, and the thermometer is confined in the center of the cylinder by having its upper end sealed to the end of the cylinder, while the lower end is fixed in a cork collar just above the junction of the bulb and cylinder. The scale is engraved on the thermometer-tube to degrees, and has a range from — 10°.0 to + 215°.0 Fahrenheit.

At about 20° from the top of the column of mercury, a small portion of air (covering about 0°.5 on the scale) is introduced into the column, so that whenever the temperature diminishes the column of mercury above the air remains in position, indicating the highest temperature subsequent to the last observation. After each observation the instrument is adjusted by holding it in a vertical position, tapping it gently, if necessary, until the upper portion forces the air down to the main column.

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This thermometer rests in a horizontal position, in metallic crutches, three inches high, which are attached to an inch board 16 inches long and 5 inches wide. The board is painted green and placed on the grass about three yards west of the Meteorological Observatory. This instrument failed to register as it was intended to do, and during 1872 the records generally show simply the temperature in the sun at the hours of observation.

METEOROLOGICAL OBSERVATORY.

In 1862, a small building for the special protection of thermometers was erected about four yards southwest of the southwest corner of the south wing of the Observatory. It is constructed of wood, and painted white throughout.

Its form is octagonal, each side being 2.4 feet wide and 6.3 feet high to the eaves. The roof is of tin, unpainted on the under side. The ceiling is of thick boards, tightly fitted together, and between it and the roof there is an open space freely communicating with the open air.

On the north side is the door, which, as well as the sides, is of double louver-work, with a space of three inches between the two divisions. The sides terminate one foot from the ground, and, as the building is situated on a grass-plat, under ordinary circumstances the instrument should indicate the true temperature. The increasing density of the trees and shrubbery in the Observatory grounds, and especially about this building, will soon render some new arrangement necessary.

The dry, wet-bulb, maximum, and minimum thermometers are in the Meteorological Observatory, and are all supported by means of arms and brackets to an upright metallic shaft, which is firmly secured to the ground in the center of the building.

The bulb of the minimum thermometer is 5.8 feet, those of the dry and the wet-bulb thermometers are 4.2 feet, and that of the maximum thermometer is 3.2 feet above the ground.

A standard thermometer (Troughton and Simms, No. 1) is suspended between the dry and the wet-bulb thermometers, and is frequently used as a check on the other instruments.

From frequent comparisons it has been ascertained that the errors of the maximum, minimum, and wet-bulb thermometers are not appreciable, and therefore the published observations with these instruments are the unmodified copies of the original records.

The maximum and minimum thermometers were read at the end (midnight) of each day.

DIRECTION AND FORCE OF THE WIND.

An ordinary wind-vane revolves freely on a spindle at the top of the time-ball staff, and the direction of the wind is estimated from the known azimuths of the lines of the main building of the Observatory. The velocity of the wind is recorded in numerals, of which 0 indicates a calm, 1 a very slight breeze, and so on up to 10, which would indicate a violent hurricane.

These recorded numbers are only estimates, and at best are but approximative.

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CLOUDS.

In the description of the prevailing forms of clouds, the nomenclature of Howard is used; C., K., S., N., being the symbols for the forms designated *cirrus*, *cumulus*, *stratus*, *nimbus;* and the letters C. S., C. K., &c., indicate the combinations *cirro-stratus*, *cirro-cumulus*, &c. The portion of sky obscured is determined by estimation after a careful scrutiny of the clouds or sky. A clear sky is denoted by 0, and a total obscuration by 10.

RAIN-GAUGE.

This instrument is placed within the inclosure for the protection of the solar thermometer. It consists of a cylinder 0.8 inch long and 4.1 inches in diameter, soldered to an inverted cone, which is loaded with lead on the outside and near the apex.

The cone rests in an aperture in the horizontal top of an oblong box, and this, aided by the weight of the lead, prevents any disturbance, even during high winds. The top of the gauge is 2.0 feet above the ground, and is free from all shelter, even in driving rain-storms.

At the apex of the cone is a small aperture through which the water passes to a receiving-bottle in the box.

The rain is measured in a glass cylinder with an internal diameter of 0.60 inch, so graduated that the depth of rain can be determined to within 0.002 inch.

The gauge is examined every day, and as the apex of the cone closes the mouth of the bottle, except through the small aperture, there is little or no loss by evaporation.

Each inch of snow is assumed to be equal to 0.111 inch of rain; but, whenever practicable, the snow has been melted, and measured in the graduated cylinder.

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OBSERVATIONS.

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Mean Time.		0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.		in.	in.	in.	in.	in.	in.	in.	in.
January	1	30.022	30.028	30.056	30.141	30.163	30.208	30.294	30.352
	2	30.361	30.374	30.375	30.450	30.387	30.353	30.373	30.395
	3	30.341	30.322	30.295	30.270	30.192	30.109	30.076	29.997
	4	29.934	29.921	29.948	29.971	29.961	29.955	30.010	30.018
	5	30.014	30.004	30.016	30.039	29.991	29.957	29.948	29.954
	6	29.932	29.906	29.915	30.008	29.962	29.971	30.032	30.074
	7	30.107	30.135	30.204	30.329	30.328	30.296	30.339	30.353
	8	30.357	30.316	30.303	30.323	30.247	30.179	30.191	30.192
	9	30.195	30.195	30.206	30.163	30.216	30.168	30.164	30.181
	10	30.153	30.133	30.120	30.164	30.105	30.060	30.054	30.062
	11	30.040	30.022	30.014	30.026	29.961	29.845	29.789	29.742
	12	29.773	29.832	29.899	29.978	29.962	29.928	29.911	29.875
	13	29.846	29.779	29.735	29.740	29.692	29.637	29.712	29.777
	14	29.799	29.849	29.917	30.005	30.039	30.022	30.114	30.139
	15	30.149	30.145	30.153	30.160	30.083	29.974	29.934	29.920
	16	29.868	29.819	29.802	29.853	29.839	29.856	29.920	29.958
	17	29.992	30.031	30.062	30.125	30.112	30.121	30.156	30.170
	18	30.169	30.165	30.192	30.206	30.126	30.052	30.069	30.059
	19	30.036	30.035	30.027	30.016	29.950	29.791	29.709	29.633
	20	29.591	29.601	29.671	29.741	29.733	29.729	29.787	29.830
	21	29.814	29.794	29.784	29.825	29.801	29.826	29.924	29.986
	22	30.011	30.001	29.985	29.997	29.912	29.817	29.963	29.736
	23	29.653	29.593	29.583	29.621	29.592	29.566	29.635	29.667
	24	29.691	29.770	29.834	29.965	29.968	29.963	30.018	30.037
	25	30.054	30.069	30.052	30.056	29.983	29.895	29.885	29.877
	26	29.884	29.866	29.866	29.864	29.797	29.715	29.660	29.707
	27	29.694	29.712	29.724	29.771	29.726	29.667	29.646	29.624
	28	29.569	29.537	29.560	29.589	29.601	29.588	29.630	29.634
	29	29.601	29.705	29.853	29.924	29.996	30.002	30.089	30.165
	30	30.237	30.290	30.325	30.382	30.341	30.274	30.264	30.275
	31	30.252	30.252	30.243	30.219	30.169	30.114	30.159	30.199
Hourly means.		29.972	29.974	29.991	30.030	29.998	29.956	29.982	29.987

Mean Time.		0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.		in.	in.	in.	in.	in.	in.	in.	in.
February	1	30.239	30.285	30.331	30.260	30.327	30.259	30.265	30.290
	2	30.277	30.269	30.286	30.340	30.324	30.402	30.272	30.231
	3	30.153	30.025	29.944	29.846	29.717	29.616	29.566	29.558
	4	29.561	29.606	29.705	29.798	29.825	29.848	29.899	29.952
	5	29.993	30.012	30.074	30.150	30.189	30.149	30.157	30.170
	6	30.153	30.109	30.090	30.085	30.041	29.998	30.032	30.135
	7	30.255	30.321	30.445	30.521	30.522	30.491	30.512	30.485
	8	30.467	30.420	30.389	30.354	30.306	30.213	30.189	30.157
	9	30.111	30.016	30.001	30.014	29.972	29.919	29.952	29.958
	10	29.929	29.881	29.907	29.910	29.890	29.888	29.904	29.934
	11	29.914	29.906	29.951	29.986	29.964	29.926	29.926	29.948
	12	29.953	29.931	29.950	30.005	29.950	29.921	29.950	29.928
	13	29.907	29.879	29.851	29.805	29.719	29.588	29.514	29.474
	14	29.497	29.508	29.548	29.596	29.569	29.574	29.640	29.696
	15	29.737	29.727	29.750	29.786	29.753	29.702	29.752	29.796
	16	29.793	29.781	29.810	29.836	29.803	29.753	29.743	29.765
	17	29.699	29.666	29.685	29.726	29.717	29.703	29.755	29.812
	18	29.840	29.870	29.926	30.019	30.005	29.980	30.005	30.048
	19	30.034	30.026	30.032	30.040	30.007	29.967	30.000	30.017
	20	29.994	30.001	29.999	30.032	30.002	29.911	29.901	29.856
	21	29.799	29.736	29.734	29.747	29.715	29.660	29.640	29.639
	22	29.646	29.647	29.683	29.749	29.781	29.758	29.813	29.895
	23	29.934	29.947	29.993	30.034	30.000	29.891	29.855	29.844
	24	29.787	29.763	29.757	29.765	29.671	29.595	29.561	29.535
	25	29.498	29.490	29.496	29.531	29.547	29.612	29.769	29.902
	26	29.943	29.994	30.076	30.129	30.128	30.081	30.081	30.077
	27	30.059	30.037	30.029	30.048	29.964	29.891	29.858	29.877
	28	29.887	29.907	29.961	29.981	29.941	29.915	29.919	29.905
	29	29.856	29.826	29.804	29.851	29.780	29.720	29.758	29.811
Hourly means.		29.928	29.917	29.938	29.964	29.901	29.894	29.903	29.921

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
March 1	29.849	29.908	29.994	30.059	30.050	30.012	29.988	30.042
2	29.942	29.842	29.750	29.643	29.619	29.599	29.681	29.749
3	29.774	29.825	29.920	29.962	29.954	29.902	29.886	29.894
4	29.836	29.745	29.717	29.692	29.620	29.584	29.671	29.811
5	29.923	30.005	30.047	30.113	30.064	30.014	30.018	30.061
6	30.046	29.993	29.997	30.040	30.006	29.971	30.010	30.063
7	30.090	30.112	30.154	30.182	30.153	30.110	30.105	30.122
8	30.113	30.115	30.137	30.127	30.094	30.012	29.976	29.949
9	29.904	29.799	29.802	29.812	29.777	29.701	29.656	29.633
10	29.575	29.491	29.444	29.439	29.469	29.548	29.638	29.734
11	29.831	29.763	29.931	29.967	29.955	29.907	29.892	29.871
12	29.873	29.867	29.909	30.007	30.031	30.044	30.121	30.181
13	30.203	30.239	30.270	30.266	30.187	30.063	30.053	30.041
14	30.021	30.048	30.030	30.034	29.998	29.915	29.826	29.738
15	29.690	29.784	29.927	30.049	30.094	30.098	30.157	30.245
16	30.258	30.217	30.273	30.276	30.157	30.078	30.023	30.022
17	29.977	29.906	29.852	29.847	29.780	29.688	29.679	29.730
18	29.783	29.791	29.810	29.904	29.885	29.836	29.802	29.774
19	29.729	29.674	29.662	29.661	29.644	29.693	29.796	29.872
20	29.902	29.915	29.957	29.983	30.005	30.066	30.153	30.227
21	30.230	30.207	30.209	30.228	30.177	30.120	30 141	30.180
22	30.199	30.214	30.265	30.276	30.191	30.115	30.078	30.076
23	30.010	29.894	29.837	29.804	29.719	29.709	29.748	29.888
24	29.958	30.044	30.134	30.221	30.223	30.220	30.252	30.281
25	30.297	30.326	30.337	30.349	30.303	30.191	30.120	30.062
26	29.999	29.909	29.910	29.932	29.954	29.922	29.976	29.999
27	29.994	30.000	30.026	30.052	30.040	30.011	30.017	30.035
28	30.045	30.050	30.060	30.087	30.049	29.983	29.956	29.961
29	29.955	29.926	29.913	29.922	29.870	29.828	29.830	29.876
30	29.907	29.904	29.952	30.008	29.978	29.914	29.903	29.882
31	29.819	29.698	29.627	29.496	29.358	29.290	29.280	29.391
Hourly means.	29.959	29.943	29.953	29.982	29.949	29.908	29.916	29.947

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
April 1	29.544	29.606	29.718	29.802	29.890	29.910	29.974	30.043
2	30.078	30.113	30.169	30.242	30.197	30.112	30.050	30.085
3	30.026	29.985	30.009	30.022	29.958	29.898	29.898	30.015
4	30.098	30.105	30.144	30.190	30.139	30.080	30.078	30.101
5	30.150	30.148	30.197	30.194	30.160	30.079	30.080	30.117
6	30.106	30.072	30.086	30.100	30.056	29.955	29.906	29.937
7	29.952	29.928	29.896	29.883	29.818	29.749	29.748	29.777
8	29.770	29.780	29.827	29.893	29.905	29.849	29.863	29.868
9	29.817	29.760	29.733	29.706	29.662	29.595	29.554	29.536
10	29.580	29.620	29.720	29.856	29.837	29.800	29.835	29.936
11	29.981	30.037	30.106	30.182	30.120	30.124	30.126	30.156
12	30.174	30.148	30.162	30.134	30.187	30.053	30.046	30.036
13	29.965	29.976	29.986	30.073	30.055	29.990	29.972	30.022
14	30.025	30.022	30.071	30.058	30.011	29.948	29.989	30.034
15	30.041	30.026	30.026	29.987	29.899	29.724	29.631	29.644
16	29.699	29.812	29.927	30.007	30.023	30.041	30.094	30.180
17	30.241	30.243	30.255	30.225	30.143	30.036	29.984	29.977
18	29.901	29.838	29.798	29.737	29.657	29.560	29.496	29.487
19	29.434	29.462	29.560	29.651	29.686	29.687	29.710	29.784
20	29.820	29.834	29.885	29.920	29.905	29.872	29.858	29.907
21	29.916	29.928	29.971	29.990	29.953	29.883	29.853	29.837
22	29.826	29.788	29.806	29.891	29.915	29.891	29.950	30.024
23	30.070	30.109	30.141	30.158	30.098	30.126	29.995	30.035
24	30.035	30.011	30.021	30.022	29.978	29.920	29.920	29.960
25	29.994	30.001	30.038	30.059	30.025	29.937	29.896	29.924
26	29.911	29.903	29.920	29.899	29.837	29.755	29.743	29.762
27	29.774	29.810	29.873	29.936	29.904	29.859	29.848	29.892
28	29.931	29.873	30.040	30.085	30.083	30.049	30.051	30.073
29	30.090	30.117	30.175	30.220	30.180	30.139	30.129	30.187
30	30.220	30.237	30.253	30.262	30.198	30.145	30.115	30.163
Hourly means.	29.939	29.943	29.984	30.013	29.983	29.926	29.913	29.950

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
May 1	30.119	30.076	30.052	30.016	29.965	29.894	29.880	29.895
2	29.836	29.874	29.886	29.899	29.844	29.773	29.773	29.886
3	29.830	29.884	30.004	30.002	29.940	29.838	29.796	29.823
4	29.901	29.928	29.995	30.042	30.084	30.098	30.118	30.173
5	30.194	30.207	30.272	30.290	30.220	30.152	30.094	30.094
6	30.051	30.044	30.031	30.020	29.940	29.860	29.852	29.968
7	30.034	30.038	30.050	30.061	30.001	29.941	29.926	29.997
8	29.998	30.000	30.022	30.041	30.012	29.969	29.956	29.990
9	29.972	29.946	29.952	29.972	29.934	29.876	29.870	29.897
10	29.917	29.939	29.976	30.011	29.972	29.941	29.927	29.968
11	29.986	29.968	29.998	29.984	29.938	29.884	29.877	29.912
12	29.877	29.844	29.844	29.856	29.805	29.744	29.714	29.738
13	29.744	29.781	29.820	29.876	29.870	29.839	29.866	29.944
14	29.971	30.011	30.093	30.126	30.111	30.080	30.074	30.126
15	30.133	30.143	30.146	30.145	30.097	30.044	30.013	30.008
16	29.985	30.026	30.047	30.078	30.032	29.951	29.933	29.937
17	29.946	29.944	29.964	29.952	29.888	29.825	29.811	29.831
18	29.833	29.801	29.802	29.794	29.752	29.685	29.651	29.633
19	29.570	29.502	29.401	29.491	29.424	29.436	29.476	29.554
20	29.584	29.610	29.650	29.638	29.632	29.578	29.548	29.641
21	29.724	29.750	29.816	29.878	29.868	29.854	29.880	29.903
22	29.914	29.910	29.926	29.893	29.829	29.720	29.672	29.677
23	29.639	29.611	29.629	29.637	29.682	29.735	29.868	29.830
24	29.810	29.803	29.834	29.857	29.781	29.731	29.694	29.709
25	29.696	29.688	29.707	29.761	29.773	29.786	29.783	29.820
26	29.864	29.844	29.885	29.954	29.926	29.887	29.870	29.891
27	29.878	29.838	29.820	29.762	29.633	29.604	29.662	29.740
28	29.764	29.779	29.805	29.804	29.791	29.781	29.800	29.873
29	29.937	29.973	30.038	30.047	30.019	29.971	29.965	30.006
30	29.986	29.986	29.973	29.916	29.896	29.833	29.813	29.894
31	29.936	29.999	30.025	30.062	30.048	30.011	30.026	30.072
Hourly means.	29.891	29.895	29.918	29.931	29.894	29.849	29.845	29.885

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
June 1	30.073	30.092	30.117	30.119	30.046	29.960	29.891	29.894
2	29.844	29.853	29.880	29.914	29.914	29.905	29.911	29.970
3	29.976	29.982	29.992	30.013	30.001	29.958	29.954	29.935
4	29.922	29.866	29.813	29.736	29.633	29.540	29.540	29.640
5	29.647	29.618	29.595	29.596	29.614	29.634	29.690	29.752
6	29.786	29.799	29.817	29.823	29.819	29.768	29.770	29.818
7	29.811	29.830	29.847	29.844	29.748	29.689	29.673	29.668
8	29.620	29.610	29.604	29.614	29.627	29.625	29.618	29.668
9	29.694	29.713	29.743	29.779	29.761	29.720	29.704	29.701
10	29.672	29.645	29.662	29.668	29.675	29.679	29.683	29.777
11	29.816	29.828	29.880	29.926	29.924	29.894	29.880	29.934
12	29.940	29.945	29.972	29.957	29.916	29.843	29.803	29.851
13	29.865	29.890	29.894	29.903	29.862	29.771	29.706	29.701
14	29.666	29.660	29.660	29.657	29.605	29.569	29.677	29.743
15	29.765	29.785	29.796	29.805	29.824	29.804	29.800	29.826
16	29.822	29.830	29.867	29.926	29.910	29.884	29.908	29.959
17	29.990	30.023	30.082	30.122	30.112	30.072	30.075	30.109
18	30.118	30.126	30.132	30.149	30.123	30.077	30.051	30.096
19	30.097	30.098	30.098	30.110	30.096	30.086	30.076	30.099
20	30.109	30.121	30.155	30.162	30.152	30.112	30.090	30.135
21	30.133	30.132	30.143	30.142	30.098	30.037	29.981	29.996
22	29.964	29.918	29.940	29.956	29.932	29.870	29.846	29.866
23	29.871	29.882	29.895	29.896	29.871	29.822	29.813	29.844
24	29.858	29.843	29.829	29.858	29.854	29.808	29.791	29.792
25	29.770	29.739	29.737	29.744	29.718	29.686	29.712	29.755
26	29.768	29.794	29.819	29.880	29.892	29.878	29.885	29.914
27	29.924	29.946	29.986	29.997	29.993	29.955	29.944	29.988
28	30.008	30.006	30.034	30.058	30.040	29.986	29.984	29.985
29	30.004	29.988	30.008	30.028	30.017	29.972	29.953	29.975
30	29.983	29.972	30.005	30.036	30.014	29.966	29.936	29.946
Hourly means.	29.884	29.885	29.903	29.914	29.893	29.852	29.845	29.878

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
July 1	29.946	29.967	29.975	29.976	29.958	29.896	29.854	29.871
2	29.868	29.862	29.886	29.901	29.883	29.847	29.825	29.827
3	29.848	29.828	29.851	29.862	29.826	29.781	29.756	29.800
4	29.792	29.756	29.766	29.787	29.762	29.688	29.717	29.765
5	29.774	29.781	29.827	29.867	29.860	29.824	29.858	29.907
6	29.930	29.926	29.966	29.988	29.991	29.954	29.948	29.975
7	29.978	29.990	30.006	30.023	30.003	29.971	29.982	30.007
8	30.022	30.014	30.043	30.075	30.066	30.032	30.021	30.048
9	30.062	30.062	30.100	30.116	30.080	30.055	30.027	30.060
10	30.044	30.037	30.037	30.022	29.984	29.901	29.870	29.884
11	29.904	29.878	29.895	29.899	29.879	29.840	29.835	29.854
12	29.870	29.851	29.848	29.849	29.835	29.798	29.818	29.839
13	29.851	29.868	29.907	29.930	29.909	29.879	29.889	29.923
14	29.914	29.911	29.930	29.970	29.953	29.887	29.865	29.912
15	29.907	29.904	29.904	29.893	29.862	29.807	29.793	29.802
16	29.797	29.774	29.787	29.798	29.793	29.864	29.755	29.782
17	29.762	29.738	29.767	29.790	29.776	29.757	29.770	29.827
18	29.820	29.804	29.825	29.838	29.815	29.767	29.734	29.793
19	29.793	29.820	29.860	29.885	29.889	29.886	29.873	29.895
20	29.923	29.923	29.965	29.992	29.985	29.950	29.913	29.940
21	29.938	29.921	29.934	29.903	29.859	29.779	29.742	29.720
22	29.678	29.632	29.697	29.749	29.785	29.806	29.848	29.886
23	29.906	29.944	29.961	29.977	29.936	29.882	29.840	29.819
24	29.788	29.729	29.754	29.804	29.826	29.830	29.856	29.926
25	29.862	29.992	30.039	30.055	30.023	29.963	29.950	29.949
26	29.905	29.830	29.790	29.769	29.744	29.721	29.704	29.738
27	29.751	29.822	29.868	29.906	29.888	29.865	29.865	29.903
28	29.928	29.949	29.959	29.980	29.952	29.914	29.919	29.960
29	29.974	29.976	29.989	30.000	29.968	29.909	29.876	29.883
30	29.891	29.894	29.898	29.916	29.919	29.883	29.862	29.900
31	29.900	29.849	29.846	29.820	29.788	29.749	29.720	29.774
Hourly means.	29.881	29.879	29.899	29.914	29.897	29.861	29.848	29.876

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
August 1	29.805	29.814	29.858	29.886	29.865	29.797	29.772	29.861
2	29.852	29.818	29.818	29.825	29.810	29.750	29.726	29.770
3	29.795	29.785	29.810	29.839	29.837	29.836	29.844	29.884
4	29.906	29.936	29.965	30.027	30.042	30.033	30.033	30.095
5	30.133	30.146	30.171	30.179	30.151	30.087	30.074	30.108
6	30.098	30.082	30.078	30.103	30.079	30.024	30.027	30.076
7	30.085	30.091	30.102	30.131	30.127	30.082	30.073	30.106
8	30.133	30.143	30.157	30.158	30.153	30.109	30.075	30.108
9	30.116	30.110	30.079	30.126	30.092	30.035	29.996	30.024
10	30.017	30.002	30.010	29.998	29.957	29.888	29.872	29.949
11	29.936	29.936	29.944	29.967	29.944	29.872	29.913	29.922
12	29.939	29.929	29.956	29.970	29.960	29.889	29.881	29.931
13	29.938	29.917	29.926	29.922	29.898	29.837	29.815	29.896
14	29.862	29.847	29.877	29.889	29.864	29.814	29.822	29.912
15	29.892	29.906	29.932	29.949	29.945	29.914	29.969	30.000
16	29.992	29.966	29.959	29.965	29.939	29.901	29.901	29.910
17	29.898	29.917	29.935	29.966	29.983	29.973	29.976	30.015
18	30.030	30.032	30.047	30.071	30.048	30.012	30.004	30.034
19	30.054	30.046	30.065	30.102	30.090	30.054	30.034	30.059
20	30.073	30.100	30.110	30.129	30.129	30.076	30.061	30.079
21	30.080	30.074	30.092	30.096	30.089	30.030	29.995	30.003
22	29.984	29.955	29.959	29.958	29.907	29.809	29.771	29.781
23	29.864	29.850	29.862	29.874	29.862	29.854	29.838	29.865
24	29.900	29.891	29.946	29.946	29.932	29.922	29.920	29.938
25	20.961	29.961	29.972	29.947	29.930	29.885	29.867	29.894
26	29.875	29.880	29.918	29.938	29.928	29.887	29.861	29.897
27	29.873	29.834	29.834	29.843	29.806	29.789	29.795	29.872
28	29.876	29.901	29.854	29.962	29.935	29.899	29.890	29.907
29	29.894	29.873	29.874	29.853	29.809	29.726	29.676	29.615
30	29.599	29.581	29.634	29.715	29.716	29.702	29.752	29.834
31	29.850	29.832	29.849	29.835	29.830	29.807	29.853	29.937
Hourly means.	29.945	29.940	29.955	29.976	29.957	29.913	29.906	29.945

Hosted by Google

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
September 1	29.972	30.012	30.053	30.086	30.076	30.044	30.031	30.059
2	30.064	30.026	30.019	30.026	29.979	29.920	29.890	29 900
3	29.894	29.904	29.946	29.993	29.970	29.937	29.940	29.976
4	29.990	30.007	30.023	30.035	29.988	29.922	29.894	29.925
5	29.903	29.880	29.862	29.868	29.868	29.846	29.817	29.823
6	29.824	29.832	29.841	29.853	29.849	29.827	29.830	29.869
7	29.976	29.908	29.934	29.968	29.952	29.917	29.903	29.910
8	29.922	29.912	29.937	29.958	29.938	29.972	29.858	29.905
9	29.901	29.900	29.933	29.957	29.953	29.910	29.952	30.006
10	30.033	30.058	30.099	30.117	30.130	30.108	30.114	30.158
11	30.140	30.120	30.132	30.153	30.124	30.068	30.030	30.040
12	30.010	29.974	29.970	29.960	29.901	29.852	29.853	29.856
13	29.818	29.844	29.846	29.912	29.912	29.897	29.920	29.970
14	29.969	29.998	30.040	30.102	30.078	30.044	30.061	30.081
15	30.068	30.047	30.041	30.036	30.012	29.964	29.957	29.964
16	29.934	29.922	29.914	29.920	29.890	29.845	29.849	29.867
17	29.884	29.875	29.901	29.902	29.890	29.849	29.841	29.860
18	29.864	29.884	29.896	29.910	29.879	29.824	29.772	29.766
19	29.726	29.701	29.671	29.695	29.680	29.703	29.774	29.849
20	29.878	29.895	29.953	30.011	30.016	29.981	30.010	30.048
21	30.055	30.064	30.077	30.068	30.018	29.972	29.941	29.951
22	29.959	29.991	30.032	30.062	30.056	30.004	30.015	30.068
23	30.052	30.045	30.065	30.112	30.086	30.060	30.054	30.086
24	30.104	30.120	30.153	30.163	30.140	30.098	30.100	30.116
25	30.088	30.071	30.061	30.064	29.978	29.908	29.920	29.929
26	29.919	29.913	29.923	29.944	29.908	29.843	29.828	29.854
27	29.806	29.785	29.828	29.848	29.870	29.854	29.848	29.949
28	29.988	29.999	30.045	30.100	30.078	30.020	29.999	30.010
29	29.960	29.886	29.886	29.865	29.815	29.756	29.766	29.800
30	29.836	29.857	29.904	29.949	29.938	29.884	29.901	29.914
Hourly means.	29.951	29.948	29.966	29.988	29.966	29.928	29.922	29.950

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
October 1	29.887	29.877	29.911	29.928	29.916	29.889	29.909	29.969
2	29.974	29.996	30.013	30.040	29.996	29.940	29.914	29.920
3	29.884	29.830	29.816	29.806	29.737	29.643	29.645	29.703
4	29.729	29.780	29.862	29.928	29.951	29.920	29.943	30.010
5	30.028	30.054	30.098	30.139	30.119	30.080	30.092	30.133
6	30.135	30.126	30.128	30.132	30.098	30.041	30.059	30.030
7	29.994	29.954	29.925	29.923	29.860	29.874	29.891	29.898
8	29.898	29.917	29.966	30.001	29.992	29.984	30.024	30.048
9	30.067	30.102	30.120	30.113	30.087	30.029	30.024	30.010
10	29.950	29.922	29.892	29.878	29.806	29.734	29.784	29.886
11	29.957	29.996	30.043	30.096	30.085	30.089	30.117	30.146
12	30.136	30.130	30.138	30.139	30.069	29.986	29.962	29.952
13	29.870	29.840	29.802	29.754	29.673	29.596	29.593	29.630
14	29.610	29.579	29.574	29.596	29.614	29.645	29.740	29.770
15	29.802	29.866	29.862	29.966	29.936	29.879	29.874	29.875
16	29.845	29.854	29.864	29.909	29.918	29.940	30.040	30.147
17	30.173	30.222	30.246	30.281	30.222	30.182	30.158	30.148
18	30.059	30.041	30.017	29.994	29.964	29.922	29.938	29.984
19	29.995	30.007	30.028	30.054	30.002	29.982	30.002	30.049
20	30.071	30.091	30.151	30.189	30.151	30.111	30.125	30.141
21	30.125	30.145	30.150	30.180	30.153	30.104	30.114	30.144
22	30.148	30.143	30.156	30.201	30.161	30.155	30.173	30.175
23	30.179	30.161	30.155	30.173	30.186	30.240	30.175	30.209
24	30.226	30.228	30.252	30.293	30.257	30.265	30.226	30.227
25	30.120	30.051	30.015	29.984	29.872	29.796	29.746	29.702
26	29.665	29.702	29.699	29.725	29.688	29.672	29.692	29.692
27	29.686	29.680	29.701	29.717	29.689	29.664	29.709	29.754
28	29.794	29.844	29.904	30.024	30.106	30.169	30.239	30.295
29	30.329	30.348	30.393	30.471	30.439	30.421	30.453	30.456
30	30.405	30.401	30.395	30.421	30.383	30.311	30.268	30.243
31	30.195	30.146	30.104	30.096	30.030	29.970	29.954	29.960
Hourly means.	29.998	30.001	30.012	30.034	30.005	29.975	29.987	30.010

Hosted by Google

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
November 1	29.935	29.940	29.965	29.982	29.944	29.949	30.004	30.035
2	30.037	30.027	30.012	30.008	29.949	29.882	29.835	29.788
3	29.752	29.726	29.746	29.805	29.825	29.851	29.949	30.020
4	30.041	30.079	30.129	30.207	30.197	30.183	30.230	30.275
5	30.279	30.295	30.303	30.327	. .	30.223	30.201	30.210
6	30.195	30.187	30.167	30.201	30.113	30.051	30.011	29.925
7	29.825	29.753	29.747	29.689	29.628	29.532	29.568	29.572
8	29.613	29.626	29.675	29.727	29.732	29.751	29.841	29.896
9	29.918	29.938	29.975	29.988	29.948	29.928	29.957	29.982
10	30.010	30.074	30.080	30.132	30.123	30.088	30.120	30.122
11	30.130	30.126	30.130	30.130	30.097	30.064	30.062	30.031
12	29.978	29.886	29.846	29.803	29.737	29.743	29.709	29.862
13	30.036	30.074	30.073	30.118	30.054	29.999	29.950	29.944
14	29.928	29.848	29.774	29.758	29.699	29.666	29.653	29.641
15	29.670	29.741	29.814	29.884	29.887	29.902	29.953	29.976
16	29.989	29.994	29.988	30.014	29.983	29.985	30.073	30.151
17	30.217	30.285	30.375	30.427	20.468	30.450	30.487	30.487
18	30.430	30.406	30.375	30.357	30.259	30.173	30.128	30.114
19	30.094	30.084	30.076	30.102	30.002	29.920	29.894	29.864
20	29.826	29.837	29.868	29.920	29.938	29.965	30.083	30.170
21	30.205	30.227	30.221	30.276	30.221	30.174	30.135	30.105
22	30.075	30.018	29.973	29.910	29.844	29.835	29.908	29.950
23	30.010	30.036	30.094	30.155	30.145	30.133	30.150	30.154
24	30.157	30.178	30.189	30.207	30.143	30.065	30.061	30.049
25	30.007	29.957	29.932	29.939	29.885	29.880	29.955	30.006
26	30.024	30.028	30.034	30.002	29.907	29.867	29.922	29.974
27	30.029	30.075	30.088	30.125	30.125	30.101	30.156	30.205
28	30.245	30.244	30.243	30.256	30.155	30.066	30.014	29.916
29	29.841	29.867	29.873	29.908	29.901	29.915	29.965	29.957
30	29.922	29.909	29.911	29.958	29.938	29.938	30.012	30.030
Hourly means.	30.014	30.016	30.022	30.044	29.995	29.976	30.000	30.014

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
December 1	30.061	30.090	30.098	30.090	29.962	29.910	29.853	29.807
2	29.782	29.770	29.772	29.781	29.613	29.650	29.627	29.747
3	29.856	29.880	29.888	29.947	29.978	30.005	30.041	30.074
4	30.061	30.104	30.123	30.203	30.190	30.186	30.217	30.245
5	30.227	30.217	30.217	30.198	30.156	30.113	30.121	30.163
6	30.175	30.189	30.197	30.244	30.208	30.172	30.213	30.241
7	30.243	30.227	30.219	30.222	30.176	30.113	30.072	30.057
8	29.935	29.881	29.796	29.714	29.598	29.561	29.568	29.554
9	29.543	29.560	29.582	29.660	29.680	29.772	29.872	29.931
10	29.978	30.050	30.072	30.221	30.203	30.221	30.280	30.351
11	30.365	30.348	30.360	30.382	30.334	30.285	30.304	30.279
12	30.256	30.220	30.170	30.177	30.065	30.058	30.067	30.098
13	30.105	30.132	30.161	30.181	30.117	30.038	30.040	30.007
14	30.046	30.096	30.120	30.188	30.156	30.115	30.127	30.102
15	29.963	29.939	29.914	29.964	29.961	29.966	30.025	30.104
16	30.108	30.096	30.093	30.024	29.966	29.893	29.826	29.839
17	29.918	29.992	30.091	30.205	30.224	30.225	30.271	30.293
18	30.247	30.171	30.112	30.064	29.908	29.845	29.917	30.028
19	30.118	30.294	30.360	30.436	30.402	30.365	30.271	30.166
20	30.026	29.846	29.684	29.689	29.669	29.715	29.830	29.918
21	30.031	30.115	30.169	30.246	30.156	30.076	30.024	29.962
22	29.980	30.142	30.249	30.382	30.360	30.309	30.296	30.253
23	30.201	30.060	30.000	30.000	29.899	29.896	29.947	30.022
24	30.144	30.269	30.356	30.438	30.432	30.411	30.444	30.453
25	30.454	30.424	30.387	30.416	30.355	30.253	30.199	30.126
26	29.938	29.824	29.672	29.672	29.565	29.584	29.602	29.640
27	29.704	29.719	29.755	29.860	29.871	29.887	29.942	30.029
28	30.042	30.107	30.138	30.234	30.219	30.236	30.270	30.277
29	30.272	30.292	30.292	30.338	30.282	30.277	30.326	30.357
30	30.385	30.417	30.430	30.500	30.441	30.392	30.369	30.339
31	30.232	30.204	30.115	30.109	30.048	30.002	30.034	30.104
Hourly means.	30.077	30.086	30.084	30.122	30.071	30.050	30.064	30.083

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9.
1872.	°	°	°	°	°	°	°	°
January 1	46.6	45.6	47.3	46.4	46.4	45.1	40.1	36.6
2	32.6	32.1	30.6	31.5	41.1	40.5	33.9	33.1
3	33.6	32.1	31.6	32.1	34.1	37.8	37.6	37.8
4	36.9	36.4	35.5	37.5	43.1	43.3	40.3	38.6
5	37.6	37.1	36.9	36.7	41.0	42.3	47.6	32.1
6	33.1	31.8	33.1	35.5	41.0	41.6	39.1	38.1
7	34.6	32.1	31.1	27.5	36.3	33.5	28.7	27.6
8	26.1	25.0	25.1	26.1	26.8	26.1	26.0	25.6
9	26.6	25.9	26.1	26.0	37.6	42.6	34.4	31.1
10	29.6	26.6	26.1	25.1	31.9	37.7	33.6	30.1
11	30.5	30.6	25.1	26.2	31.1	38.6	33.7	32.3
12	31.1	39.1	35.1	34.6	54.6	56.1	46.6	40.6
13	38.3	37.8	37.9	37.7	43.4	49.9	44.7	43.1
14	39.1	34.1	29.1	27.1	25.6	26.8	21.7	20.4
15	18.1	16.6	15.3	19.1	25.3	29.1	27.7	26.1
16	26.1	25.6	27.1	27.3	36.3	36.4	31.1	28.6
17	28.1	27.6	28.1	29.1	31.6	30.5	28.1	25.6
18	23.1	21.1	20.6	23.1	34.0	38.1	35.1	33.1
19	31.3	29.9	29.1	31.1	33.7	35.1	35.6	34.6
20	34.1	31.7	33.1	37.3	47.1	48.1	40.1	38.1
21	36.1	35.1	34.6	35.0	38.1	40.1	35.5	32.3
22	31.6	39.1	26.1	27.6	36.1	37.6	34.6	31.7
23	31.6	33.6	32.5	34.1	40.6	36.1	31.1	30.3
24	28.3	22.9	18.9	14.6	21.1	22.6	22.1	21.1
25	19.1	18.1	15.1	19.1	27.1	31.9	26.6	22.6
26	21.1	17.6	14.7	20.9	31.8	36.6	27.9	25.6
27	23.1	16.9	17.1	23.3	29.9	33.5	32.6	30.8
28	30.1	29.6	29.1	29.7	33.6	35.6	32.6	29.6
29	26.7	21.1	12.3	10.6	18.3	21.4	16.4	14.1
30	14.1	11.3	9.6	10.1	16.6	19.7	17.1	9.6
31	4.8	2.6	1.7	8.1	25.1	25.6	22.6	19.7
Hourly means.	29.2	28.0	26.3	27.4	33.9	36.1	32.4	29.7

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
February 1	15.8	11.6	5.6	10.6	23.8	28.4	20.9	16.9
2	16.3	12.6	9.9	14.1	30.5	33.4	29.9	29.1
3	26.6	26.1	26.6	28.1	29.0	28.3	27.7	27.5
4	27.3	28.4	29.5	33.1	37.1	40.9	35.9	31.9
5	29.1	28.6	23.1	25.1	42.0	48.3	40.5	37.1
6	37.1	33.1	32.6	36.9	40.5	39.1	38.1	39.6
7	33.0	28.1	24.1	25.5	33.3	35.1	27.1	23.1
8	19.9	19.9	21.0	25.6	31.3	32.6	32.1	31.8
9	31.6	31.9	32.6	33.1	35.9	36.3	34.1	32.6
10	31.1	32.3	31.6	35.6	42.6	41.1	39.1	38.1
11	36.7	36.6	36.3	38.5	45.6	51.1	43.6	37.1
12	33.4	31.6	30.6	34.1	40.4	45.6	41.6	39.3
13	37.5	36.9	37.1	38.3	39.6	40.4	39.2	38.7
14	37.1	30.7	27.1	24.1	27.6	25.6	20.1	16.3
15	9.9	8.6	9.3	14.8	19.6	25.6	21.6	21.1
16	22.1	22.6	22.1	27.1	36.8	43.6	37.1	32.1
17	31.1	30.3	29.6	29.1	22.1	33.1	32.6	31.8
18	29.6	24.8	22.3	26.3	37.9	36.1	31.6	29.6
19	28.7	28.3	27.6	33.1	40.8	43.8	37.7	28.6
20	26.1	23.1	22.6	30.1	45.6	51.1	42.1	35.8
21	35.1	35 9	34.1	43.7	46.7	48.6	42.1	42.0
22	37.6	34.1	33.6	32.8	32.8	34.1	29.1	26.1
23	23.0	20.9	20.1	26.1	32.5	40.1	36.1	33.1
24	32.1	32.3	31.1	40.1	57.7	62.6	53.1	47.3
25	49.1	47.1	44.8	44.6	55.6	53.1	44.3	36.1
26	32.6	30.6	28.7	32.6	36.6	41.1	37.3	30.1
27	30.6	26.6	22.1	30.1	39.9	43.6	39.3	29.1
28	26.1	27.1	25.6	29.1	37.6	40.6	35.1	31.7
29	28.9	28.6	29.6	26.5	26.6	26.1	25.6	26.1
Hourly means.	29.5	27.9	26.6	30.0	36.8	39.6	35.0	31.7

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
March 1	25.9	22.6	16.9	24.4	33.2	39.6	35.4	32.1
2	32.6	30.6	26.6	20.1	19.3	20.1	22.1	22.6
3	24.1	21.1	19.1	23.5	29.6	35.7	31.9	27.1
4	24.4	26.1	25.1	30.2	40.1	40.3	29.6	19.6
5	12.1	8.1	7.6	11.6	18.5	22.1	20.6	15.8
6	13.1	11.7	13.1	17.7	22.5	27.3	25.6	23.6
7	21.6	19.3	18.7	24.6	32.4	37.6	34.5	32.6
8	32.1	31.1	30.6	31.3	33.1	30.7	31.1	29.1
9	29.1	30.1	30.7	32.1	34.6	35.1	34.1	33.6
10	33.1	34.6	34.1	35.4	36.4	36.4	36.6	34.6
11	32.1	28.6	26.6	32.1	35.3	34.2	30.9	30.6
12	31.1	31.1	31.1	32.1	37.4	37.0	34.1	30.1
13	30.1	29.1	25.7	32.9	37.5	42.2	38.3	34.3
14	33.9	34.4	33.0	36.1	40.4	49.9	44.6	40.5
15	39.1	41.3	35.6	34.1	35.1	35.1	31.1	27.1
16	25.1	23.1	21.7	27.6	33.8	36.1	35.1	29.8
17	30.4	31.3	31.6	31.4	33.7	35.0	34.1	32.6
18	32.1	27.6	26.9	36.7	43.1	46.4	42.1	37.3
19	38.6	37.6	38.1	50.7	61.1	55.1	44.1	37.3
20	32.1	31.9	32.1	35.3	32.9	27.6	22.8	18.3
21	18.6	16.9	17.6	22.3	28.1	32.6	30.1	28.1
22	26.6	25.1	21.6	30.6	38.4	37.9	35.1	32.1
23	31.6	30.1	30.3	32.6	40.3	36.9	37.6	37.9
24	33.6	27.6	27.6	34.7	42.1	46.6	43.8	35.1
25	28.6	27.1	26.6	34.1	43.6	44.1	38.9	37.7
26	36.3	35.7	35.6	37.6	40.1	42.6	41.1	39.7
27	39.1	38.6	38.1	42.7	47.6	54.7	50.8	39.1
28	34.1	32.6	32.1	46.1	59.6	58.6	54.1	47.6
29	44.9	42.6	42.9	48.1	61.1	67.3	62.8	49.6
30	45.6	45.6	42.6	46.6	51.6	52.1	47.1	43.6
31	41.1	39.1	41.1	43.3	50.1	67.1	63.1	51.1
Hourly means.	30.7	29.4	28.4	32.9	38.5	40.8	37.5	33.2

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
April 1	46.3	44.1	38 6	41.6	43.1	44.3	44.6	41.1
2	35.6	36.1	34.3	45.6	55.0	59.6	54.9	56.6
3	43.6	44.1	42.1	45.7	50.3	60.7	59.6	49.1
4	38.1	33.6	32.1	41.8	46.7	52.6	48.8	38.6
5	36.6	31.6	30.1	41.6	50.4	56.7	52.7	43.1
6	38.1	36.7	33.6	46.9	57.1	61.8	56.9	53.7
7	49.1	47.1	45.1	47.1	50.7	57.1	58.8	56.6
8	55.1	52.6	51.6	50.1	57.5	65.1	59.1	55.1
9	51.1	49.1	50.1	53.8	68.4	71.1	72.3	66.1
10	63.1	57.6	55.0	53.4	61.8	66.6	64.6	57.8
11	52.6	51.1	46.6	57.4	64.9	71.9	71.6	58.7
12	53.1	47.3	44.6	61.1	69.6	67.5	60.7	60.2
13	58.6	57.6	57.1	58.6	64.3	70.6	66.1	56.1
14	55.6	49.1	53.1	57.9	65.1	69.3	65.7	54.6
15	48.6	48.1	42.1	41.6	38.7	38.8	40.6	41.4
16	40.1	38.1	37.1	40.1	45.8	48.3	48.1	41.1
17	35.6	30.6	30.3	44.6	52.3	54.6	53.6	45.6
18	44.1	43.7	44.1	47.3	52.0	51.5	53.3	51.9
19	51.1	50.1	47.9	52.6	58.1	62.5	60.8	52.1
20	47.1	45.1	43.1	54.1	62.6	65.1	61.5	56.1
21	51.1	46.6	43.9	58.1	69.1	71.1	63.6	58.6
22	55.9	55.1	56.1	53.8	54.6	55.4	52.6	45.1
23	39.1	36.1	33.6	39.1	51.6	58.7	54.7	47.1
24	45.6	42.6	42.6	55.6	69.1	72.6	67.1	60.9
25	55.1	51.6	49.1	62.3	79.3	80.3	73.6	65.6
26	60.6	56.6	54.1	69.1	83.4	85.9	81.3	73.6
27	67.6	65.1	63.1	68.7	77.1	80.0	74.1	66.6
28	58.1	56.6	53.1	51.9	53.1	57.1	55.3	50.1
29	48.1	45.1	41.3	55.6	63.8	70.4	64.7	55.3
30	51.1	54.1	44.3	57.6	67.3	70.1	63.6	55.6
Hourly means.	49.2	46.6	44.6	51.8	59.4	63.2	60.2	53.8

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
May 1	53.1	51.9	55.1	66.5	71.4	72.5	69.9	65.1
2	62.1	59.6	59.6	62.6	72.3	72.6	70.1	58.4
3	50.6	46.1	45.1	50.6	58.1	67.3	62.1	59.6
4	48.6	44.1	43.6	50.2	54.1	56.7	54.6	47.6
5	42.6	40.6	39.3	51.4	59.6	66.1	65.3	53.6
6	48.9	46.5	48.6	65.4	77.3	84.7	82.6	71.1
7	57.6	51.6	48.6	65.9	78.9	89.5	82.6	75.6
8	70.1	61.6	60.3	75.3	84.8	89.1	83.1	72.6
9	66.4	61.6	60.9	69.7	81.7	85.1	80.1	71.6
10	66.1	63.4	62.6	76.1	86.7	89.4	82.1	72.6
11	68.6	63.1	62.1	75.8	88.0	87.6	78.1	74.3
12	67.1	61.6	60.3	69.0	81.1	83.3	79.1	69.1
13	67.6	63.4	58.9	63.1	70.5	75.1	67.8	59.2
14	55.1	48.1	48.1	62.1	70.1	75.6	69.9	61.3
15	57.1	53.1	53.1	66.0	75.3	77.6	74.9	66.6
16	63.4	63.1	58.6	64.1	71.8	76.6	71.4	59.8
17	52.6	49.1	47.6	59.7	68.6	72.1	66.5	61.6
18	57.6	54.6	57.1	63.1	65.7	61.5	61.2	61.4
19	61.6	62.1	61.9	64.6	73.3	79.6	74.6	63.6
20	62.1	58.6	59.1	71.7	77.4	81.1	71.6	63.6
21	58.1	54.1	55.6	65.1	72.1	77.5	74.8	62.3
21	56.7	53.4	53.1	68.6	80.1	79.1	65.6	66.6
23	65.3	65.6	66.0	75.1	75.6	74.9	70.1	61.1
24	58.1	53.6	53.6	65.3	74.1	79.1	77.1	70.6
25	69.1	68.1	67.1	69.1	71.9	67.8	66.3	62.6
26	62.1	55.1	56.6	63.6	69.1	75.6	72.3	61.1
27	56.6	53.4	54.6	70.7	80.6	66.6	60.3	58.3
28	55.6	55.6	55.1	67.8	74.6	73.8	71.8	61.5
29	56.6	52.1	50.6	63.4	72.3	75.8	72.6	64.6
30	62.6	59.1	60.1	69.0	71.6	71.6	70.6	63.7
31	61.3	57.1	53.4	62.8	69.9	74.1	71.1	60.1
Hourly means.	59.4	55.8	55.4	65.6	73.5	76.1	71.6	63.9

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
June 1	58.1	52.6	53.3	67.1	74.3	77.3	73.4	67.3
2	63.1	60.3	57.6	66.1	74.1	73.1	73.1	62.3
3	58.1	58.1	58.6	67.1	74.6	74.8	65.1	61.1
4	59.9	57.6	57.1	58.1	61.7	65.3	68.3	61.1
5	57.6	55.1	54.1	61.3	63.6	71.1	66.1	62.6
6	62.6	57.1	54.6	69.6	79.6	84.6	80.3	67.5
7	64.1	62.6	64.1	69.9	80.6	76.7	76.1	72.6
8	73.3	69.6	69.1	79.1	87.6	85.6	80.3	75.1
9	69.1	66.1	63.1	75.3	83.6	89.3	81.6	75.6
10	72.6	70.6	69.1	81.1	74.1	67.4	70.9	64.1
11	62.1	61.1	61.6	71.1	79.3	85.6	83.5	69.7
12	65.7	61.1	61.7	76.5	86.1	91.1	86.6	75.0
13	71.1	67.6	68.6	78.1	86.1	88.6	85.0	76.1
14	73.1	69.1	69.6	81.4	90.6	84.6	71.5	63.1
15	61.1	59.3	59.9	71.1	75.1	74.6	70.1	67.1
16	67.1	66.1	65.1	69.3	77.1	82.1	73.4	67.1
17	63.1	60.1	61.1	67.6	77.6	79.1	76.4	67.5
18	64.1	60.1	61.1	71.1	79.1	80.4	79.5	70.1
19	66.6	64.6	63.1	71.6	81.6	83.8	79.8	68.5
20	65.3	61.3	62.1	73.1	82.6	86.6	81.1	73.4
21	69.6	67.1	65.9	76.0	85.1	89.1	83.4	76.6
22	73.6	72.1	71.6	77.0	83.7	92.1	84.6	75.6
23	69.1	67.6	66.6	78.9	86.6	89.4	83.5	74.6
24	73.1	71.1	70.6	70.7	71.1	74.0	75.1	71.6
25	69.7	69.6	71.1	74.1	81.1	84.6	77.1	73.1
26	69.1	68.1	67.6	74.1	81.4	83.6	81.7	76.4
27	73.1	70.1	69.6	76.6	87.1	86.6	85.1	78.1
28	72.7	70.6	69.1	78.5	89.8	87.1	81.1	74.6
29	72.1	71.6	71.3	79.6	87.6	92.1	88.8	79.6
30	75.1	74.1	73.7	84.1	90.9	93.6	89.1	80.3
Hourly means.	67.2	64.7	64.4	73.2	80.4	82.5	78.4	70.9

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
July 1	76.6	74.1	76.1	86.1	92.1	94.6	91.6	82.6
2	78.1	76.6	76.9	86.6	95.8	94.7	89.9	80.9
3	77.6	75.7	76.6	88.3	96.8	97.5	88.1	78.6
4	76.1	74.6	74.6	78.3	88.6	94.1	83.6	76.4
5	74.6	72.6	72.9	80.6	89.1	93.5	88.6	79.1
6	73.9	72.1	71.6	79.1	88.6	90.3	86.1	78.1
7	76.1	70.6	70.6	77.0	82.7	86.9	79.6	76.6
8	72.6	71.1	71.6	76.9	82.6	89.9	84.7	76.9
9	74.1	73.1	72.3	79.1	89.1	88.3	83.6	78.1
10	77.1	74.6	75.6	84.3	91.7	98.2	91.6	82.6
11	77.1	75.1	75.6	85.6	91.6	80.1	75.6	74.1
12	73.1	71.6	70.6	75.1	77.6	81.6	81.1	74.3
13	71.1	69.3	71.1	80.9	88.1	91.1	87.1	80.1
14	77.6	75.1	74.6	80.1	87.5	92.6	84.7	76.7
15	74.1	72.5	74.1	79.3	83.8	87.6	83.6	78.6
16	77.1	74.6	75.6	83.2	90.7	86.3	83.7	79.1
17	74.6	75.1	75.1	81.1	87.6	94.1	86.3	80.6
18	77.9	75.6	75.9	85.8	93.5	92.6	92.6	79.3
19	78.1	74.6	73.1	79.1	88.1	90.3	85.3	75.1
20	68.1	66.1	64.9	76.3	86.1	89.1	85.1	73.1
21	66.1	65.6	64.6	76.3	86.1	87.1	80.5	77.3
22	73.1	71.6	68.6	75 9	83.6	87.9	81.8	73.1
23	67.1	65.9	66.6	74.1	77.5	79.1	78.6	71.7
24	70.1	70.7	71.6	82.6	85.8	92.1	90.6	77.1
25	71.6	66.3	66.6	77.3	87.6	90.1	85.1	79.1
26	76.3	75.6	76.6	83.1	94.7	97.1	91.8	81.9
27	79.1	71.1	69.1	75.1	85.1	91.1	85.3	74.1
28	67.7	64.1	64.1	75.9	90.4	87.3	85.8	73.6
29	70.6	69.6	70.1	76.1	82.7	87.6	85.1	77.7
30	73.7	71.1	69.7	80.8	91.4	92.8	87.3	75.6
31	73.6	72.6	73.1	79.3	85.3	85.6	87.9	78.6
Hourly means.	74.0	72.2	71.6	80.0	87.8	90.0	85.6	74.2

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
August 1	75.1	73.6	68.1	74.6	87.1	91.7	87.3	72.9
2	72.1	71.6	72.1	85.8	86.6	90.1	83.6	75.9
3	70.3	67.3	67.9	75.1	83.7	84.3	82.7	72.1
4	68.6	66.6	66.9	74.6	84.6	86.6	82.4	72.3
5	70.1	67.1	66.6	74.9	84.4	88.8	82.5	76.6
6	75.1	70.1	72.1	75.2	83.4	87.1	79.6	74.1
7	70.6	67.6	67.7	74.6	86.6	91.6	86.0	76.9
8	72.6	69.1	69.1	76.8	80.1	92.8	85.4	76.6
9	71.0	69.1	69.6	77.1	90.2	93.5	86.5	77.6
10	74.6	72.6	71.9	79.5	93.1	95.1	88.5	77.6
11	75.1	73.1	71.6	77.6	88.6	94.6	78.5	75.3
12	74.6	74.1	74.6	79.4	91.7	98.1	88.6	78.1
13	77.6	75.1	73.6	79.6	91.6	93.1	88.7	81.9
14	78.1	75.6	75.1	82.8	95.1	96.6	81.1	73.7
15	73.1	73.6	73.6	76.9	87.1	87.2	74.6	72.6
16	72.1	71.6	72.1	75.5	73.6	77.6	73.0	73.6
17	72.6	72.3	72.4	77.1	84.1	89.5	84.1	77.1
18	74.6	71.1	71.7	77.3	85.6	88.1	85.9	78.1
19	76.6	73.6	73.1	78.6	90.6	90.9	87.3	80.6
20	77.6	75.6	75.1	82.1	89.1	94.1	88.4	79.6
21	78.1	73.6	73.6	81.0	85.9	92.8	86.1	79.5
22	76.9	75.1	74.9	83.6	92.7	97.1	88.7	83.2
23	76.1	74.1	73.6	79.1	86.1	90.1	83.1	73.6
24	70.6	68.6	68.3	72.6	83.1	87.6	78.9	72.7
25	71.6	69.1	69.1	76.6	78.4	91.6	84.4	78.1
26	75.1	74.1	71.6	81.4	90.6	94.5	87.4	78.6
27	75.6	73.6	73.1	80.7	89.6	87.1	83.6	77.6
28	73.1	68.1	63.1	72.6	82.4	80.5	75.5	72.1
29	68.9	64.6	64.5	64.6	66.7	69.9	71.7	71.6
30	70.6	68.6	67.1	69.1	73.6	74.6	67.7	61.6
31	57.3	52.6	53.3	64.6	73.1	77.1	70.1	62.1
Hourly means.	73.1	70.7	70.2	76.8	85.8	88.8	82.3	75.3

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6 .	9h.
1872.	°	°	°	°	°	°	°	°
September 1	61.1	57.1	55.3	66.1	75.5	79.1	73.1	65.6
2	62.6	59.1	58.6	68.9	81.1	78.1	75.1	69.3
3	65.6	62.6	60.9	65.1	72.1	74.6	65.7	57.7
4	53.3	48.1	47.7	59.9	69.7	75.9	69.1	62.1
5	58.1	55.6	57.1	60.7	63.0	62.1	63.1	62.4
6	62.6	62.1	61.6	69.8	79.6	87.1	81.5	76.4
7	72.1	70.0	68.6	74.1	90.4	94.3	85.5	78.6
8	74.1	71.9	69.6	77.1	91.1	94.0	86.4	77.3
9	74.1	71.1	69.6	79.3	92.8	95.9	84.6	75.1
10	73.1	71.3	71.3	72.9	77.3	71.3	69.6	68.6
11	68.6	68.1	68.1	68.6	71.6	73.7	74.7	71.6
12	68.6	71.1	71.7	72.1	79.5	78.6	73.9	70.6
13	71.6	66.1	65.7	70.6	76.3	77.9	73.3	68.6
14	66.1	64.3	60.6	63.3	69.6	71.1	62.1	56.1
15	54.6	53.6	53.1	57.1	65.4	69.3	62.8	61.1
16	59.6	54.1	53.6	60.7	71.0	74.1	65.4	57.6
17	54.1	51.6	50.3	60.5	75.4	77.6	68.1	62.6
18	62.1	56.1	55.1	63.6	75.1	76.6	67.0	61.1
19	59.1	57.6	58.1	63.7	76.3	73.6	65.1	58.6
20	56.8	55.1	55.6	61.7	69.9	73.1	64.1	56.0
21	52.6	49.3	49.1	58.3	76.6	82.8	71.1	65.9
22	63.6	59.1	57.9	65.6	84.3	87.4	77.8	69.6
23	66.1	65.1	62.1	68.1	82.7	84.3	74.6	68.7
24	67.1	63.1	62.1	68.6	84.1	86.6	77.1	71.1
25	67.7	68.1	68.1	71.7	79.6	74.1	70.1	67.6
26	67.6	66.6	64.6	67.8	77.6	78.1	71.1	69.7
27	59.1	58.6	57.7	64.1	72.1	75.1	64.1	55.6
28	52.1	49.1	47.6	62.6	68.6	69.3	62.1	57.1
29	57.1	55.9	58.5	65.9	68.5	74.6	71.0	66.7
30	64.1	55.4	52.6	68.1	70.3	70.9	64.7	61.1
Hourly means.	63.2	60.6	59.7	66.6	76.2	78.0	74.5	65.7

Mean Time.	0 .	3h.	6h.	9h.	Noon.	3h.	6h.	9 .
1872.	°	°	°	°	°	°	°	°
October 1	59.1	56.1	54.3	60.7	64.7	66.6	56.8	52.6
2	48.6	47.1	46.1	54.4	62.3	66.7	59.1	54.0
3	51.1	49.7	49.7	60.2	74.1	77.5	67.7	66.1
4	64.7	59.6	56.6	62.6	65.1	69.1	64.1	59.6
5	58.1	54.6	57.3	66.1	71.1	74.4	69.9	66.6
6	65.1	65.1	65.6	70.1	78.8	80.4	72.6	68.1
7	64.6	64.1	63.5	66.0	72.6	60.1	59.4	59.6
8	57.1	53.1	52.1	58.7	65.3	63.6	56.6	51.1
9	49.1	44.6	43.1	54.1	65.1	69.1	59.7	55.1
10	51.6	51.1	47.9	60.1	70.5	77.6	63.3	54.6
11	49.1	46.1	44.6	50.3	52.9	52.1	48.1	46.1
12	44.0	36.1	35.1	49.1	56.9	58.5	50.9	49.4
13	49.1	49.1	49.1	57.6	55.1	57.6	49.6	47.1
14	43.9	42.1	42.6	47.1	51.9	53.6	44.6	43.3
15	41.7	38.1	37.6	46.9	54.4	59.6	48.3	46.6
16	47.1	45.1	43.1	53.1	62.3	68.1	60.1	54.1
17	50.1	48.1	43.6	49.6	57.9	62.5	58.7	56.7
18	54.1	51.6	53.1	53.7	57.1	60.1	57.1	53.1
19	46.1	43.6	40.6	50.7	59.9	68.5	51.8	48.1
20	42.3	39.1	34.9	47.1	55.3	61.8	51.1	42.1
21	39.3	38.1	37.1	51.4	62.1	67.6	58.9	53.1
22	49.1	46.3	45.6	56.3	70.1	68.7	61.9	60.1
23	58.6	57.9	57.3	60.1	64.6	62.8	60.3	55.1
24	53.1	49.6	49.1	49.1	49.8	50.8	51.3	51.1
25	50.6	50.6	51.7	56.1	59.3	58.1	59.2	63.1
26	56.1	54.1	54.1	60.1	65.0	65.8	60 7	58.1
27	54.6	49.1	48.1	61.6	65.1	66.8	59.7	55.1
28	52.6	52.1	51.7	53.6	52.1	51.1	50.1	45.6
29	41.8	39.3	37.6	47.6	53.9	52.8	45.7	40.1
30	35.1	34.6	34.1	45.1	47.5	49.3	43.9	42.6
31	43.2	41.1	39.1	44.1	48.6	52.1	44.6	40.4
Hourly means.	50.7	48.3	47.3	52.8	61.0	63.0	56.3	52.9

Mean Time.	0 .	3h.	6h.	9h.	Noon.	3 .	6h.	9h.
1872.	°	°	°	°	°	°	°	°
November 1	39.1	38.0	40.6	50.1	59.1	58.1	50.3	43.4
2	37.6	35.6	34.5	41.9	47.1	50.4	46.9	46.1
3	45.6	45.1	45.3	51.1	51.6	53.1	48.5	42.6
4	39.6	39.1	37.1	46.1	56.3	59.1	47.6	41.1
5	37.6	35.1	32.7	43.1	. .	55.1	50.2	49.1
6	48.3	48.3	48.4	48.1	51.6	52.5	52.6	52.5
7	52.6	51.1	48.1	49.1	55.6	61.7	55.6	54.3
8	53.3	52.1	47.1	50.1	53.1	54.9	46.1	40.4
9	37.1	35.1	33.7	43.1	48.7	49.6	43.6	37.1
10	34.3	34.1	31.9	40.6	52.3	55.8	47.8	41.6
11	36.7	37.1	40.6	45.3	52.3	53.8	50.7	49.9
12	51.1	52.1	52.6	53.6	58.1	58.3	62.1	48.3
13	38.9	37.6	36.6	41.4	47.1	47.6	43.1	44.6
14	44.1	43.1	43.6	45.4	47.6	47.6	46.3	44.7
15	41.1	35.1	31.6	35.1	39.7	39.7	36.6	32.1
16	32.6	33.1	31.9	33.8	35.1	32.1	31.1	28.6
17	27.1	26.1	26.5	31.1	38.1	40.1	33.1	29.1
18	28.9	28.6	27.6	31.6	41.0	43.6	34.8	29.1
19	26.1	24.6	22.6	31.6	45.1	47.9	41.6	40.6
20	39.1	38.5	34.6	39.6	37.6	35.6	30.1	26.3
21	22.1	20.1	18.9	27.1	34.3	36.1	32.8	31.6
22	31.1	29.6	29.6	32.6	37.5	38.6	34.7	34.1
23	34.1	38.6	37.1	40.1	45.1	50.6	39.1	36.9
24	34.6	32.3	31.6	37.0	49.6	57.1	46.6	42.6
25	41.6	41,8	42.6	45.7	55.3	60.1	54.1	54.1
26	49.1	44.1	40.1	39.1	40.9	40.1	38.7	35.6
27	32.6	31.6	29.1	33.6	42.7	44.6	38.6	33.6
28	31.1	28.6	24.1	32.9	38.6	38.6	32.3	32.6
29	32.6	30.0	28.1	25.9	25.1	23.1	17.3	15.7
30	14.1	13.1	14.1	18.1	22.1	23.1	20.6	16.4
Hourly means.	37.1	35.0	34.8	39.5	45.1	47.0	41.8	38.5

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
December 1	16.1	14.3	15.1	23.4	29.6	30.6	33.0	37.6
2	38.1	37.1	35.6	42.1	54.1	54.1	48.3	46.1
3	42.2	37.1	33.6	38.8	45.1	45.4	38.8	31.9
4	31.1	30.8	31.6	38.1	41.3	40.3	33.5	27.6
5	24.6	25.1	26.1	29.4	32.6	34.3	31.3	28.1
6	26.1	25.6	25.1	30.3	41.7	44.5	41.9	37.6
7	32.1	31.9	31.6	32.1	42.5	45.4	37.1	31.6
8	29.1	29.1	32.1	36.1	41.6	47.8	41.1	38.1
9	36.6	35.1	33.6	31.1	30.6	25.6	22.6	20.6
10	18.1	15.9	16.1	19.6	23.5	24.9	22.6	19.6
11	18.6	21.1	21.6	23.8	29.1	31.1	27.6	25.1
12	23.1	22.1	22.1	24.1	31.6	27.5	25.6	25.1
13	22.6	21.1	19.6	23.9	33.1	37.1	28.1	28.3
14	25.6	21.6	21.1	28.6	47.1	49.8	37.9	32.7
15	32.1	33.1	35.1	34.6	46.1	50.6	43.1	33.6
16	30.3	29.1	28.1	32.5	32.6	35.1	34.1	34.7
17	34.1	33.9	33.1	31.6	37.3	37.8	31.1	30.4
18	30.1	29.1	28.1	29.6	30.7	31.1	31.9	33.1
19	31.1	29.3	28.1	26.9	32.8	31.9	30.1	28.6
20	27.7	28.1	31.6	32.5	34.1	34.7	36.9	35.1
21	32.6	28.1	24.1	23.1	31.1	31.3	27.8	28.6
22	27.6	18.1	10.1	4.9	8.1	11.6	10.1	9.1
23	14.1	21.3	22.6	25.6	36.1	40.1	32.9	31.6
24	23.6	13.1	7.1	9.6	11.1	14.6	12.6	8.6
25	7.6	6.6	8.6	9.7	11.4	11.6	11.6	13.1
26	16.4	16.6	15.5	17.6	15.1	16.8	17.1	17.9
27	18.6	15.6	12.6	11.6	13.6	17.6	17.6	16.4
28	13.1	11.6	14.1	19.3	23.7	27.1	20.9	10.1
29	12.3	14.1	16.1	18.6	29.6	32.6	29.6	28.1
30	27.1	26.3	25.9	26.1	31.1	31.8	29.6	29.6
31	30.6	31.1	32.6	34.2	38.6	42.7	38.1	34.6
Hourly means.	25.5	24.3	23.8	26.1	31.8	33.5	29.8	27.5

Hosted by Google

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
January 1	47.0	46.0	48.0	47.0	46.9	44.6	39.8	36.7
2	32.0	32.0	30.2	30.4	37.0	37.4	33.0	32.4
3	34.0	32.6	32.0	32.7	34.7	38.2	38.0	38.5
4	37.5	37.0	36.0	38.0	41.5	41.0	38.8	37.0
5	35.5	35.0	35.0	34.6	38.0	39.0	36.0	32.0
6	33.0	31.5	33.5	33.5	38.2	38.5	36.5	36.0
7	32.5	30.5	30.0	25.5	33.3	30.0	28.0	27.5
8	26.5	24.5	25.5	26.5	26.8	26.7	26.5	26.4
9	27.0	26.2	26.5	25.5	35.0	39.5	34.0	31.5
10	30.0	27.0	26.5	26.0	32.5	37.5	34.2	30.5
11	30.6	30.6	25.5	27.0	31.5	38.5	34.4	33.0
12	32.0	36.0	33.4	33.5	43.0	43.5	41.0	37.0
13	36.0	36.0	35.5	35.2	39.0	44.2	41.0	39.0
14	38.0	30.5	26.5	25.5	23.0	24.0	22.0	21.0
15	18.8	17.0	16.0	19.6	23.4	27.0	27.5	26.5
16	26.5	25.8	27.3	28.0	33.6	33.5	29.5	28.0
17	27.8	27.5	27.4	29.0	29.5	28.5	28.0	26.0
18	23.6	21.5	21.0	23.0	30.0	33.5	32.7	32.5
19	30.5	29.5	29.5	31.0	33.5	35.0	36.3	35.2
20	34.8	32.0	33.4	36.7	41.5	42.4	37.4	35.8
21	35.0	34.5	33.5	33.5	34.0	35.0	32.0	30.5
22	30.0	29.0	26.0	26.5	32.8	34.2	33.0	32.0
23	30.0	32.0	31.5	33.0	36.5	33.5	31.8	29.5
24	27.8	22.5	19.5	15.3	19.5	21.9	22.0	20.0
25	18.5	18.0	14.5	18.0	24.2	29.5	26.6	23.0
26	21.5	18.0	15.2	21.0	29.0	35.0	28.0	26.0
27	23.6	17.0	17.6	24.0	28.6	31.2	31.3	30.2
28	30.5	30.0	29.7	30.3	32.6	33.2	32.5	29.9
29	27.0	21.0	12.5	11.0	17.0	20.0	15.7	14.2
30	14.5	11.5	10.0	10.8	16.9	18.0	16.5	9.0
31	5.0	3.5	2.8	8.8	23.8	24.6	22.5	19.6
Hourly means.	28.9	27.3	26.2	27.1	32.2	33.5	31.2	29.2

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
February 1	16.0	12.0	6.2	11.0	21.5	25.7	21.0	17.4
2	17.0	13.0	10.0	14.0	28.5	31.6	29.0	28.7
3	26.8	26.7	26.8	28.8	29.6	29.0	28.0	28.0
4	28.0	28.9	30.0	32.0	34.0	37.0	34.0	32.5
5	29.5	29.0	23.6	25.5	38.0	43.0	38.5	37.0
6	36.7	33.0	32.5	36.2	38.6	39.0	38.9	38.0
7	29.6	25.0	22.8	24.0	31.3	34.0	27.8	23.0
8	20.5	20.5	21.0	25.0	29.6	31.0	31.0	31.2
9	31.5	31.5	32.5	33.0	33.5	33.6	32.5	30.0
10	30.0	30.4	30.5	34.5	37.5	36.6	36.1	35.5
11	34.6	34.3	34.3	36.6	42.0	44.8	41.5	36.5
12	33.5	31.8	30.8	34.4	39.8	44.0	41.5	38.2
13	37.5	37.0	37.5	38.7	40.3	41.0	40.0	39.0
14	37.0	27.3	24.2	22.5	25.0	24.5	19.5	16.0
15	10.0	9.0	10.0	14.0	18.0	23.2	21.0	20.5
16	22.0	23.0	22.5	27.3	35.0	38.0	34.0	32.5
17	31.0	30.8	30.0	29.0	30.0	31.8	32.0	31.0
18	29.5	24.8	22.5	25.0	33.0	32.0	30.0	28.5
19	28.5	28.2	28.0	32.5	34.5	37.0	32.6	27.6
20	26.0	23.5	22.5	28.5	38.9	42.5	36.7	32.5
21	32.5	34.0	32.0	39.0	40.3	40.8	36.5	35.5
22	33.5	31.3	30.5	27.8	28.0	30.0	28.6	26.0
23	23.5	21.5	20.8	26.5	29.0	35.0	34.0	32.5
24	31.0	31.0	31.0	37.2	50.0	52.8	48.0	44.5
25	46.0	46.2	45.5	45.0	48.5	46.0	39.5	33.3
26	29.2	27.0	25.5	28.0	33.5	39.0	38.0	30.0
27	31.0	27.0	22.5	26.8	33.5	35.5	33.4	28.0
28	26.5	25.5	24.4	27.5	37.0	34.5	30.7	29.3
29	28.5	28.5	29.0	27.0	27.0	26.7	26.0	26.5
Hourly means.	28.9	27.3	26.2	28.9	34.0	35.8	33.1	30.7

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
March 1	26.0	23.0	17.0	23.0	29.6	33.5	32.6	31.5
2	32.0	30.5	27.5	20.8	20.0	21.0	22.5	22.6
3	24.0	21.5	19.0	24.0	30.0	36.0	29.2	27.0
4	25.0	26.6	25.8	30.2	37.0	37.0	28.0	18.5
5	11.0	9.0	8.0	11.0	16.0	19.5	18.5	16.0
6	13.6	12.3	13.6	18.0	20.0	25.2	23.0	22.0
7	21.5	19.0	17.8	24.5	28.8	32.5	32.0	30.9
8	31.0	29.8	30.6	31.5	31.0	30.5	30.0	29.5
9	29.5	30.0	31.4	32.5	35.0	35.5	34.6	34.2
10	33.6	35.6	34.8	36.0	36.8	36.5	36.0	33.5
11	31.5	29.0	26.8	31.0	32.5	32.4	31.5	31.0
12	31.0	31.5	31.5	32.4	34.4	34.3	32.5	29.0
13	29.0	29.0	26.0	33.0	34.5	39.2	37.0	34.0
14	34.0	34.7	34.5	36.3	40.1	46.5	43.6	41.0
15	39.6	39.6	32.5	30.5	29.5	30.3	26.0	25.6
16	25.0	23.5	22.0	28.0	29.5	32.5	33.0	29.5
17	30.8	31.5	31.5	32.0	34.1	35.2	34.7	33.0
18	32.5	28.0	27.2	36.2	38.0	39.8	38.2	34.5
19	35.7	35.5	35.8	43.0	49.8	47.0	39.0	32.5
20	30.0	30.5	31.5	31.8	28.5	25.2	21.0	17.0
21	18.0	17.0	17.5	22.2	26.0	29.8	29.4	28.0
22	26.5	25.0	22.0	27.0	33.0	33.5	34.2	32.5
23	32.0	30.5	30.8	32.5	38.2	36.0	34.5	36.0
24	29.5	25.0	26.0	32.0	34.6	38.3	37.0	32.0
25	28.0	27.5	27.0	32.5	38.5	39.0	38.8	37.9
26	37.0	36.3	36.4	38.0	40.4	42.0	41.0	39.5
27	39.0	38.5	37.0	39.6	41.2	46.0	43.2	37.7
28	33.8	33.0	32.5	42.0	49.6	49.5	48.5	46.5
29	43.5	42.0	42.0	45.0	51.0	54.0	52.0	45.5
30	43.0	43.5	42.5	47.0	47.5	48.0	46.7	42.5
31	40.8	39.0	41.5	43.8	50.0	61.5	58.0	52.0
Hourly means.	30.2	29.3	28.4	31.8	35.0	37.0	35.0	32.4

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
April 1	41.5	40.2	34.5	36.0	37.6	37.0	38.0	36.0
2	33.5	34.0	32.0	39.0	46.0	58.5	47.0	42.5
3	41.0	42.5	39.0	43.5	47.0	52.2	54.5	52.5
4	33.5	31.0	29.5	37.0	39.6	43.5	42.5	36.5
5	33.7	31.5	29.8	37.0	43.5	46.8	44.0	39.5
6	36.5	35.3	33.0	43.0	50.8	55.0	51.5	49.8
7	48.5	47.0	45.8	47.0	51.0	56.9	58.0	56.5
8	55.3	53.0	52.0	50.5	56.5	62.0	58.2	54.4
9	51.6	49.5	50.6	54.4	67.0	69.0	67.6	66.0
10	63.0	57.8	50.6	45.9	51.0	33.0	51.5	48.5
11	47.5	46.0	44.5	50.0	53.8	57.6	58.0	52.0
12	49.0	46.0	44.0	56.7	60.5	57.5	57.5	58.0
13	58.0	58.0	57.6	59.0	54.0	56.5	52.3	47.5
14	46.5	43.0	45.0	48.6	51.0	54.0	50.5	46.6
15	43.0	37.5	39.5	40.7	39.0	39.2	41.2	42.0
16	40.0	37.5	35.5	36.0	40.3	41.3	40.6	38.0
17	33.5	31.0	30.5	39.5	45.5	47.3	47.5	43.3
18	42.5	42.8	43.5	46.0	49.8	51.2	52.5	52.5
19	51.5	50.5	48.0	50.0	53.2	61.0	60.0	51.5
20	46.0	44.5	43.2	52.0	55.6	57.0	56.0	53.0
21	49.0	46.2	44.5	56.0	61.5	62.5	58.5	53.8
22	52.5	53.2	53.5	47.2	47.2	47.2	43.5	39.5
23	36.5	32.5	31.5	38.7	44.3	50.5	48.2	44.3
24	43.5	42.0	41.9	50.9	58.4	61.0	57.5	53.0
25	51.5	48.0	46.8	55.5	64.0	65.8	61.0	56.2
26	53.5	52.0	50.5	60.2	67.8	71.0	66.6	62.2
27	59.8	59.0	58.0	60.0	64.5	65.0	61.5	58.0
28	56.5	55.0	52.0	48.3	49.8	52.6	52.5	48.0
29	47.5	45.5	39.0	48.3	54.0	59.5	56.0	51.2
30	48.2	44.0	44.5	52.6	57.0	58.5	57.0	51.0
Hourly means.	46.5	44.5	43.0	47.6	52.0	54.3	53.0	49.5

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
May 1	52.0	50.5	53.5	62.8	65.8	65.0	64.0	61.5
2	50.4	60.0	60.0	58.0	63.7	64.0	62.8	51.0
3	45.0	42.5	41.5	45.6	54.0	63.0	53.5	53.0
4	48.5	44.0	43.0	45.2	47.0	48.9	46.2	43.5
5	40.5	38.0	37.5	45.0	50.5	54.0	54.1	48.5
6	47.0	46.0	47.0	58.5	63.0	67.0	66.0	58.5
7	51.5	49.5	47.0	58.8	68.5	70.8	67.0	61.5
8	58.0	57.0	56.3	65.0	70.0	72.5	70.5	66.3
9	62.0	60.0	59.2	66.5	72.6	73.5	70.5	68.0
10	64.5	62.0	60.5	69.5	74.0	74.5	71.2	66.5
11	63.5	60.6	60.9	69.4	73.5	70.5	66.0	63.0
12	59.0	57.0	57.8	63.0	69.0	69.0	70.8	63.5
13	64.0	59.0	54.2	55.7	69.5	62.0	57.0	52.2
14	49.0	47.8	47.3	55.3	58.5	60.5	60.6	56.0
15	54.0	52.5	52.2	58.2	65.5	67.5	67.5	61.5
16	59.5	58.5	52.0	55.1	60.0	62.8	58.5	52.5
17	52.0	46.0	45.0	51.4	57.8	60.3	59.5	56.0
18	56.0	54.0	54.5	58.5	60.9	60.0	61.0	61.3
19	61.8	62.0	62.0	64.5	64.0	65.5	63.5	57.5
20	56.0	55.0	55.5	63.8	63.0	65.7	65.4	57.0
21	54.3	52.0	53.0	57.6	61.0	63.9	62.6	58.6
22	55.5	52.6	52.5	64.5	71.8	72.5	65.5	67.0
23	65.8	66.0	66.0	69.2	65.2	65.4	62.5	58.5
24	54.8	53.0	53.5	61.0	68.2	71.5	72.0	68.5
25	60.0	67.0	65.3	64.5	62.0	63.5	62.5	60.5
26	60.0	53.5	53.5	58.5	60.0	65.0	65.8	57.5
27	55.0	53.0	54.0	65.6	69.4	64.9	58.0	57.0
28	56.0	54.0	54.0	62.3	64.8	63.5	63.5	59.0
29	57.0	50.0	49.5	56.4	63.0	67.8	66.0	61.2
30	61.0	58.0	59.2	66.5	67.0	67.2	68.5	61.0
31	57.3	54.0	51.2	56.0	59.4	62.0	59.0	55.5
Hourly means.	55.8	54.0	53.5	59.7	64.0	65.3	63.3	58.8

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
June 1	53.7	50.5	50.0	58.5	62.6	66.0	65.0	63.0
2	63.0	60.3	58.0	62.5	66.0	65.0	65.5	59.5
3	58.0	58.0	58.5	63.5	66.0	64.5	59.0	57.0
4	56.2	56.5	56.5	58.5	61.6	64.5	63.5	55.5
5	52.0	53.0	51.2	54.9	63.0	61.0	57.5	56.5
6	55.6	53.5	52.0	61.6	67.0	68.5	67.0	61.0
7	61.6	59.5	61.3	66.0	70.8	71.0	73.0	69.5
8	69.5	68.8	69.0	73.6	75.0	75.0	72.0	68.0
9	67.0	65.2	63.0	71.0	76.0	76.5	74.0	71.5
10	71.5	68.7	68.5	74.5	72.5	65.6	67.8	62.8
11	61.0	58.5	59.5	64.5	68.5	71.5	71.8	66.2
12	62.3	60.9	61.5	71.0	75.0	77.1	77.0	67.4
13	67.0	66.0	66.2	70.5	76.3	77.0	76.5	72.2
14	69.0	66.0	67.0	74.5	79.5	77.4	67.3	61.5
15	59.6	58.8	59.2	65.6	69.9	69.9	66.0	65.0
16	66.5	65.5	64.5	66.0	68.5	71.0	68.0	66.0
17	62.0	60.5	61.2	65.4	73.0	72.8	72.0	66.0
18	63.0	60.0	61.0	69.3	71.0	73.0	69.2	66.0
19	65.0	63.5	62.5	69.0	73.8	73.2	70.5	63.5
20	62.0	60.8	61.8	68.9	73.0	75.0	72.0	68.5
21	66.0	65.5	64.5	71.0	75.9	77.0	74.7	72.1
22	71.0	70.0	70.2	73.6	76.2	78.9	74.8	65.5
23	64.0	62.5	63.0	72.3	78.0	78.5	75.7	73.0
24	71.8	70.5	70.0	70.4	70.0	72.0	72.5	70.5
25	69.8	69.6	71.3	74.0	79.0	77.6	75.0	73.0
26	68.2	68.0	67.8	71.0	74.0	76.0	76.8	74.2
27	71.5	69.5	69.5	73.8	79.5	78.5	78.0	72.5
28	72.0	69.5	68.5	75.8	76.5	77.8	74.5	73.4
29	70.5	71.0	71.0	74.5	78.5	80.0	78.9	76.0
30	73.3	72.0	72.0	74.5	60.0	79.0	78.0	76.0
Hourly means.	64.8	63.4	63.3	68.7	71.9	73.0	71.1	67.1

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
July 1	75.0	72.5	73.0	77.5	80.3	81.6	83.0	77.0
2	74.5	74.0	73.5	78.0	80.2	88.0	80.3	76.2
3	75.3	74.0	74.0	79.4	80.8	85.0	81.5	75.0
4	76.0	72.5	72.0	76.0	81.6	86.0	77.0	75.0
5	73.0	71.8	72.5	74.5	76.6	77.0	73.5	73.5
6	71.6	68.5	67.0	72.5	70.0	76.0	75.2	74.5
7	73.0	69.0	69.0	73.4	77.0	78.3	76.0	72.5
8	72.0	71.0	71.5	75.0	76.5	79.0	77.5	74.6
9	73.0	72.6	71.8	76.0	78.8	78.5	77.5	74.0
10	73.0	74.0	75.0	78.4	79.0	80.0	79.5	76.5
11	72.5	73.2	73.5	75.4	76.9	76.6	73.2	73.6
12	70.6	70.6	70.6	74.3	74.5	76.5	78.0	72.0
13	70.0	69.5	71.0	75.0	78.5	80.0	81.5	77.8
14	76.4	73.5	74.0	77.0	78.5	81.2	80.0	74.0
15	73.5	73.0	74.0	76.7	79.8	79.0	78.0	75.0
16	74.0	73.0	74.5	77.6	80.0	79.2	78.6	76.2
17	72.0	73.5	74.0	77.0	79.5	82.2	79.5	78.6
18	75.6	73.6	73.0	77.5	79.5	80.2	80.5	76.5
19	75.5	70.5	69.5	69.6	70.8	71.4	74.5	67.5
20	65.0	64.0	62.5	65.5	69.0	70.0	70.2	65.5
21	62.4	62.0	63.3	69.8	76.0	74.0	72.0	71.4
22	71.9	71.0	67.0	68.2	67.8	69.0	65.6	65.0
23	62.5	64.0	64.0	65.0	67.0	68.0	70.0	68.5
24	68.0	69.0	70.3	72.0	72.5	74.6	74.5	70.0
25	68.5	64.5	65.5	69.5	73.5	76.7	75.2	74.5
26	72.5	73.0	74.5	76.5	78.4	78.5	75.3	72.9
27	71.2	68.0	64.0	64.8	69.0	71.7	70.5	67.0
28	65.0	62.5	62.6	69.5	74.0	73.5	73.5	69.0
29	67.0	66.0	66.5	72.0	75.0	76.2	76.6	74.4
30	72.3	70.0	69.2	72.1	74.5	74.7	73.5	69.0
31	67.6	71.5	71.0	76.0	76.0	77.6	78.0	74.5
Hourly means.	71.3	70.2	70.1	73.6	75.8	77.4	76.1	73.0

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
August 1	71.8	70.5	66.5	68.6	75.6	78.5	77.8	70.8
2	70.6	70.8	72.0	74.0	76.0	79 0	76.5	74.0
3	70.5	65.5	68.0	68.5	70.5	70.5	71.5	68.0
4	66.5	65.0	64.5	69.6	71.5	72.5	71.2	66.0
5	65.5	64.0	64.0	71.0	75.5	76.8	75.8	73.5
6	73.0	70.5	71.5	73.6	76.2	76.5	73.5	71.0
7	69.0	67.2	67.0	71.5	76.0	78.6	76.0	72.5
8	70.2	68.0	68.6	73.5	75.7	78.0	76.0	73.0
9	69.5	68.4	69.0	74.6	76.7	78.0	74.0	74.5
10	73.0	71.5	71.5	74.9	80.0	80.7	77.6	73.2
11	73.0	72.0	71.5	76.0	79.0	81.7	74.0	74.5
12	73.7	73.5	74.5	77.2	81.2	82.0	79.5	77.0
13	76.0	74.5	72.5	76.0	82.5	80.0	81.0	78.0
14	76.0	74.0	73.8	77.8	80.5	82.4	78.0	73.0
15	73.0	73.5	73.5	75.2	77.6	77.0	72.5	72.5
16	72.0	71.5	72.5	75.6	73.5	76.6	73.1	74.0
17	73.0	72.5	72.5	74.0	76.5	79.0	78.0	75.0
18	73.7	71.0	71.9	75.8	80.0	81.0	80.7	76.5
19	74.5	72.8	72.5	76.4	82.5	80.5	80.0	77.8
20	76.5	75.5	75.5	77.8	79.5	80.5	80.0	77.2
21	76.0	73.5	73.5	78.0	77.4	80.0	79.5	75.9
22	75.1	74.0	74.0	78.2	81.0	81.6	81.0	77.6
23	74.0	73.6	71.5	73.6	73.5	74.0	73.2	70.5
24	69.6	67.0	67.2	68.5	74.0	80.0	72.0	68.0
25	69.0	68.0	67.5	72.0	76.5	79.5	77.3	73.4
26	73.0	72.5	71.5	75.0	78.0	79.5	77.0	75.0
27	74.0	73.5	72.5	74.6	77.0	76.5	74.6	72.0
28	68.0	64.5	60.8	66.0	71.0	70.3	76.5	65.6
29	67.0	64.9	64.6	65.0	66.8	70.2	71.8	71.5
30	71.0	69.0	66.5	62.5	62.5	62.9	59.5	53.5
31	53.0	50.5	51.5	57.3	60.7	67.5	63.5	57.0
Hourly means.	71.3	69.8	69.5	72.6	75.6	77.2	75.2	72.0

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.	Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°	1872.	°	°	°	°	°	°	°	°
September 1	56.0	58.4	54.0	60.5	64.5	76.3	69.0	62.5	October 1	57.0	56.5	54.2	55.5	57.0	56.2	50.8	49.5
2	58.5	57.5	58.5	65.5	70.0	68.6	70.0	66.6	2	46.0	44.0	44.5	49.0	52.3	56.0	54.5	52.0
3	64.0	60.0	59.8	59.5	62.0	61.3	57.5	56.0	3	48.6	48.5	48.5	56.4	64.0	68.5	63.0	62.0
4	53.0	48.0	47.5	56.0	62.5	65.3	63.5	59.5	4	62.0	58.5	56.3	58.2	60.4	63.4	61.5	56.5
5	57.0	55.8	56.5	60.5	62.0	61.0	62.0	62.0	5	57.0	54.0	57.0	62.0	66.8	69.0	66.0	64.0
6	62.3	62.0	61.6	68.5	75.5	79.7	77.5	74.5	6	63.0	65.0	65.5	70.0	72.8	73.7	69.8	65.3
7	71.6	69.5	69.0	73.0	80.2	80.7	80.0	76.5	7	64.0	63.5	63.0	65.0	69.0	60.0	60.0	60.0
8	74.0	71.7	70.7	75.4	79.5	81.2	76.2	72.3	8	56.5	52.5	51.5	54.8	57.8	56.6	54.0	50.6
9	71.0	70.0	69.0	75.2	82.5	82.3	84.0	72.0	9	48.0	45.0	44.0	52.8	57.0	60.2	58.0	53.9
10	70.2	70.3	70.5	70.7	73.0	70.2	69.0	68.0	10	51.8	51.5	48.2	57.0	64.0	67.5	57.5	49.0
11	68.5	68.0	68.5	69.0	70.9	72.3	73.0	71.0	11	40.0	45.8	43.0	45.0	46.6	45.6	44.6	42.5
12	66.3	71.0	72.0	74.5	77.5	76.5	73.5	71.0	12	41.0	36.5	35.5	45.3	50.3	52.5	50.0	46.6
13	72.0	66.0	66.0	69.4	70.5	71.8	69.7	65.0	13	48.0	48.2	48.5	49.6	51.0	53.0	48.0	46.0
14	63.5	61.5	58.0	58.6	62.0	63.0	57.8	54.9	14	43.5	38.0	41.0	42.6	45.5	45.8	41.2	40.0
15	53.3	51.5	51.6	55.0	60.0	61.7	58.6	58.0	15	39.2	38.0	36.3	42.5	45.6	49.5	44.6	43.0
16	59.5	54.0	53.0	57.2	62.0	63.0	61.0	56.4	16	43.5	42.0	41.0	48.0	54.0	59.5	56.0	50.0
17	54.0	51.8	50.5	58.2	67.0	66.8	64.0	61.0	17	46.5	44.5	42.0	46.3	53.2	57.8	57.0	56.0
18	59.0	53.5	53.0	58.5	63.5	65.0	61.5	58.3	18	54.0	51.6	54.3	54.0	56.8	59.0	56.8	50.0
19	57.5	56.5	58.0	60.5	64.6	61.2	55.8	53.5	19	44.5	42.0	39.8	47.0	51.5	50.5	47.5	45.2
20	52.0	52.0	52.5	54.8	59.5	59.6	58.5	54.5	20	40.5	39.5	35.0	42.6	47.3	50.2	46.0	41.6
21	51.5	49.4	49.5	56.3	67.5	70.5	66.5	62.0	21	39.5	37.5	37.2	48.4	55.2	57.0	54.5	51.0
22	61.5	57.8	57.5	63.8	72.5	75.5	72.8	68.5	22	48.0	46.0	45.5	53.0	63.0	61.6	59.0	58.0
23	66.0	65.0	62.0	67.2	74.5	75.3	70.6	67.2	23	57.8	57.6	57.0	59.0	62.5	62.2	60.5	55.5
24	66.5	63.0	62.2	68.0	75.6	75.0	72.0	69.0	24	53.5	50.0	49.5	49.5	50.0	51.0	51.6	51.5
25	67.2	68.0	67.8	70.5	73.5	70.6	70.0	67.5	25	51.0	51.0	52.0	56.4	59.5	58.0	59.6	63.5
26	67.5	67.0	65.0	64.8	71.4	71.9	68.0	62.0	26	56.5	54.5	54.3	57.7	58.7	59.5	58.0	55.4
27	59.0	58.5	58.0	61.5	64.0	60.7	57.5	55.5	27	52.0	49.0	48.0	57.7	58.5	60.0	54.5	53.0
28	50.0	48.5	47.8	56.2	60.0	60.0	58.5	55.0	28	51.0	51.0	50.7	52.5	50.5	49.0	48.2	45.5
29	55.5	54.5	57.5	63.6	65.8	70.5	69.0	65.2	29	42.0	39.5	38.0	44.0	47.8	46.5	42.5	39.0
30	58.0	55.2	52.6	61.5	62.0	62.0	59.6	58.6	30	35.6	35.0	33.6	42.0	44.3	45.2	42.0	41.8
									31	42.2	41.0	39.0	42.0	45.0	46.2	43.0	40.5
Hourly means.	61.5	59.9	59.3	63.8	68.5	69.3	66.9	63.5	Hourly means.	49.2	47.6	46.9	51.8	55.4	56.5	53.6	50.9

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.	Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°	1872.	°	°	°	°	°	°	°	°
November 1	39.5	38.0	41.0	47.5	50.5	49.2	44.6	41.5	December 1	16.0	14.0	15.0	22.0	26.5	28.8	32.0	38.0
2	38.0	36.0	35.0	40.6	45.0	47.0	45.0	45.5	2	37.0	34.0	35.5	38.5	46.5	48.0	44.5	40.0
3	45.6	44.5	44.0	45.0	46.0	46.9	44.7	41.5	3	38.5	35.0	33.6	35.5	39.0	39.0	34.2	31.5
4	39.5	39.0	37.5	44.1	49.6	50.6	45.0	40.0	4	30.0	30.5	31.0	34.0	36.0	35.3	31.6	27.0
5	38.0	35.5	33.5	42.5	. .	50.0	46.8	46.8	5	24.5	25.0	26.5	29.4	31.7	33.5	31.6	28.5
6	47.0	48.0	48.5	48.8	52.0	52.6	52.5	53.0	6	26.5	26.0	25.5	30.2	39.0	40.5	39.3	35.5
7	53.0	51.5	48.5	49.0	50.0	54.3	49.8	47.5	7	32.5	32.0	31.0	31.8	37.8	40.5	34.5	31.0
8	45.6	46.0	41.0	42.7	44.7	45.0	41.0	38.8	8	28.5	29.0	32.6	36.5	41.3	45.4	40.0	38.0
9	36.5	35.3	34.0	40.5	43.0	44.0	41.0	37.0	9	36.6	34.0	32.3	28.0	30.0	26.0	21.0	18.5
10	34.8	34.5	32.3	39.8	46.6	48.8	45.9	41.0	10	18.0	14.5	16.0	18.0	22.6	25.0	23.0	20.0
11	37.0	37.3	40.5	44.5	50.0	49.8	50.0	49.8	11	19.0	21.8	22.3	23.5	26.5	29.7	27.5	25.5
12	51.0	52.5	53.0	54.4	58.5	58.5	59.5	45.0	12	23.5	22.6	22.8	24.5	32.0	27.8	26.5	24.5
13	36.0	37.0	37.0	39.6	43.0	44.0	42.0	43.0	13	22.5	21.5	20.0	22.6	30.0	33.8	28.6	29.0
14	44.5	43.5	44.0	46.0	48.0	47.5	46.3	44.2	14	26.0	22.3	21.9	29.2	39.7	42.0	34.0	30.6
15	40.0	33.0	29.0	31.0	35.0	34.5	33.5	31.5	15	31.0	32.0	32.5	33.5	41.5	43.5	39.5	32.6
16	31.5	32.5	32.0	33.3	33.0	31.4	29.0	26.6	16	30.0	29.0	28.2	32.5	34.3	35.0	34.9	35.0
17	26.3	26.0	26.8	31.5	33.5	34.7	32.5	28.5	17	34.8	33.8	30.5	29.0	33.0	32.9	32.0	30.8
18	28.0	28.6	28.0	30.6	36.0	38.0	33.5	28.7	18	29.5	29.5	28.5	30.0	31.0	31.5	32.2	33.5
19	26.5	25.0	23.0	30.5	39.6	41.2	37.0	37.5	19	30.5	28.5	28.0	27.3	32.5	32.5	29.8	29.0
20	36.0	35.0	33.5	35.5	34.0	30.8	27.0	26.0	20	27.6	28.0	32.2	33.2	34.6	35.3	37.0	35.0
21	22.5	21.5	19.5	27.0	35.0	33.0	33.0	32.0	21	32.5	28.0	24.5	23.5	31.4	32.0	27.8	27.8
22	31.5	30.0	30.0	32.0	35.5	36.2	34.0	34.0	22	28.0	18.5	10.5	5.0	7.0	11.3	10.4	9.5
23	34.0	34.5	34.0	36.0	39.4	43.5	36.3	35.0	23	14.8	21.8	23.0	26.0	36.0	34.5	30.8	30.4
24	34.0	32.0	31.0	35.5	44.5	47.0	42.5	39.5	24	23.5	13.5	7.8	10.5	11 5	15.5	. .	9.0
25	39.0	39.5	39.5	42.2	49.0	52.5	49.4	50.0	25	8.0	7.0	9.0	9.8	11.4	12.0	12.3	13.5
26	49.0	43.0	39.0	39.7	41.0	40.4	39.0	36.0	26	17.0	17.2	16.0	16.3	15.5	17.0	17.5	17.5
27	33.0	32.0	29.6	32.0	39.0	41.4	37.5	33.7	27	18.0	16.0	13.0	12.0	14.2	18.3	18.0	17.0
28	29.0	26.5	23.5	29.0	34.6	33.6	30.0	32.2	28	13.5	12.0	14.5	18.3	22.5	26.0	21.0	10.5
29	32.5	30.0	28.5	24.0	24.2	22.0	19.0	16.0	29	13.0	14.3	16.5	19.0	27.0	30.5	28.8	28.0
30	15.0	15.0	15.0	18.6	22.9	23.9	20.0	16.0	30	27.5	26.8	26.5	24.5	29.0	30.5	29.5	30.0
									31	31.0	31.5	33.0	34.0	37.0	39.7	36.5	35.0
Hourly means.	36.5	35.4	34.4	37.8	41.5	42.4	39.6	37.3	Hourly means.	25.5	24.2	23.9	25.4	29.9	31.4	29.6	27.2

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
January 1	45.0	44.0	46.0	48.0	57.0	53.0	38.5	34.2
2	30.0	30.0	27.5	36.0	94.0	82.0	29.0	33.0
3	34.0	32.8	31.0	33.5	46.0	44.0	37.5	39.0
4	37.0	36.0	35.4	47.2	60.0	54.5	38.0	38.0
5	37.5	36.0	35.5	44.0	92.0	77.2	32.0	27.0
6	27.5	26.4	30.0	41.5	72.0	65.5	37.5	37.0
7	33.0	29.5	29.0	32.8	92.0	44.2	28.0	27.9
8	25.0	22.0	25.0	27.0	28.0	29.5	26.0	25.5
9	26.0	25.5	23.5	36.0	90.5	76.0	29.0	29.0
10	29.0	24.0	26.0	32.5	62.0	71.5	29.5	30.2
11	30.5	30.5	25.0	34.0	51.5	82.0	33.0	33.5
12	30.0	35.0	30.0	41.0	109.0	78.0	40.0	33.5
13	34.0	33.8	36.0	43.0	64.2	73.0	43.0	41.5
14	38.0	32.0	28.0	33.5	37.0	25.5	20.0	18.5
15	16.0	14.0	12.0	34.0	63.0	76.0	28.0	26.0
16	25.5	25.5	27.5	33.0	89.5	63.0	29.0	27.5
17	28.0	27.0	27.0	34.0	68.0	37.5	25.0	20.2
18	20.0	18.0	15.0	36.0	90.5	80.0	32.0	32.0
19	25.5	23.5	25.5	36.0	37.0	39.1	35.0	35.0
20	34.0	32.0	30.0	42.0	105.0	70.0	36.2	36.0
21	35.0	34.0	34.5	36.0	55.0	55.5	32.5	29.0
22	30.0	27.0	23.5	56.2	86.3	48.5	33.0	28.0
23	29.0	31.0	29.3	46.5	66.0	40.0	30.0	29.5
24	25.0	20.2	19.0	27.0	77.0	35.0	19.0	18.2
25	16.5	14.7	11.5	50.0	85.1	78.0	22.0	19.0
26	18.0	17.8	11.0	34.0	92.7	78.5	23.0	23.2
27	17.2	15.0	17.0	23.0	41.0	40.2	31.8	30.3
28	30.0	29.5	29.0	43.5	66.0	54.8	29.0	27.0
29	22.0	20.5	10.5	46.0	88.5	76.0	13.0	11.0
30	10.5	8.0	4.0	36.0	84.0	75.0	12.0	7.0
31	2.5	0.0	— 1.0	39.0	87.0	49.4	20.0	14.0
Hourly means.	27.1	25.6	24.3	38.1	72.2	59.8	29.4	27.8

Mean Time.	0h.	3h.	6h.	9 .	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
February 1	11.3	6.0	3.0	44.0	89.5	83.0	15.0	13.0
2	11.0	10.0	9.0	38.2	66.0	69.0	29.0	28.0
3	25.8	25.5	26.0	33.0	40.0	37.0	27.0	28.0
4	27.6	27.0	26.0	81.5	95.0	90.0	30.0	29.0
5	27.0	24.0	21.0	60.5	105.0	86.5	34.5	32.0
6	32.0	29.5	27.5	77.0	50.5	46.0	38.0	39.0
7	30.0	26.0	23.0	48.0	95.0	89.0	23.0	20.0
8	18.8	19.0	20.0	49.9	52.8	43.5	31.7	31.0
9	31.0	31.0	31.7	40.0	51.1	44.0	34.0	32.5
10	30.0	32.0	32.0	47.5	82.0	49.0	37.2	37.0
11	35.1	34.5	35.0	63.0	90.0	91.4	37.0	33.0
12	29.5	27.5	26.8	40.2	61.0	53.6	39.0	37.0
13	36.0	36.0	37.0	41.5	47.0	48.0	39.0	38.6
14	36.0	29.2	25.0	61.0	96.0	44.0	20.0	13.0
15	5.2	4.5	7.0	56.5	70.0	84.0	21.0	21.0
16	23.0	23.0	20.0	59.5	97.2	94.2	33.0	30.5
17	30.0	30.0	29.5	37.5	40.0	44.5	31.0	30.8
18	25.5	21.2	19.2	53.0	104.0	60.0	29.0	28.0
19	27.5	27.0	26.0	54.2	73.2	83.4	35.0	26.0
20	23.5	20.0	20.0	77.0	105.5	104.0	40.0	32.0
21	32.3	33.0	31.2	67.1	106.0	103.0	36.5	40.0
22	34.2	29.0	30.5	74.0	94.0	90.0	26.5	23.5
23	21.0	16.0	17.0	51.5	75.5	94.5	31.0	30.2
24	29.0	28.0	27.2	74.5	111.0	108.0	50.0	45.0
25	48.5	47.2	43.0	50.0	110.2	109.0	43.5	33.8
26	30.5	28.5	26.0	89.0	73.6	77.0	30.0	26.5
27	26.5	23.5	18.0	76.5	101.0	100.0	32.5	26.0
28	23.0	24.0	23.5	72.0	99.5	89.0	32.1	29.0
29	27.5	28.5	29.5	30.0	52.0	36.0	25.0	24.5
Hourly means.	27.2	25.5	24.5	56.8	80.5	74.2	32.1	29.6

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
March 1	23.0	18.5	12.5	64.0	110.3	92.0	33.0	30.0
2	31.0	30.0	26.0	27.0	30.0	. .	. .	21.5
3	22.0	19.0	18.5	86.5	122.0	97.0	92.0	26.0
4	23.0	25.0	25.9	64.0	103.0	107.0	92.0	30.0
5	11.0	7.0	6.0	61.0	90.0	85.0	19.0	12.5
6	13.0	8.0	14.0	66.5	91.0	89.0	88.0	21.0
7	19.5	18.0	16.0	78.0	99.0	88.0	30.5	29.0
8	31.0	30.0	30.0	40.0	45.3	35.0	31.0	29.0
9	29.0	30.2	30.0	39.0	45.8	39.0	34.0	34.0
10	33.0	35.0	34.5	36.5	45.0	50.0	33.0	31.0
11	29.5	25.0	24.0	48.0	63.2	39.0	30.5	30.0
12	31.0	30.5	30.0	57.5	97.2	64.0	34.0	27.0
13	28.0	27.0	21.0	86.0	73.0	82.3	38.0	33.4
14	33.0	34.0	34.2	42.2	66.2	65.5	43.0	40.0
15	37.0	40.0	33.0	87.5	99.0	98.2	31.1	25.0
16	24.0	22.0	20.0	84.0	97.0	95.0	33.2	28.0
17	29.5	31.0	31.6	48.5	50.0	49.0	33.0	32.0
18	30.0	24.5	23.5	90.0	107.5	84.0	40.0	33.0
19	34.5	34.0	35.0	101.0	119.0	88.0	103.5	33.0
20	28.5	28.0	28.5	95.0	91.2	73.0	26.0	14.5
21	14.5	14.0	15.0	84.6	95.8	91.0	31.5	24.5
22	23.0	22.0	18.5	75.5	103.0	59.0	35.0	31.8
23	32.0	30.0	30.0	47.2	81.0	45.0	38.5	35.5
24	30.0	24.5	22.0	94.0	107.0	107.0	44.0	30.0
25	24.0	24.5	24.5	52.0	80.0	56.0	38.6	37.0
26	36.5	36.0	36.0	47.0	60.0	55.0	42.0	40.0
27	39.0	38.5	38.0	97.8	109.0	110.0	51.0	34.8
28	30.5	30.0	29.8	96.5	120.5	76.0	52.0	45.0
29	43.0	41.5	42.0	65.5	89.9	119.0	57.0	46.0
30	43.5	42.5	39.8	89.0	74.0	66.5	50.0	42.0
31	40.0	38.5	41.0	48.0	92.0	119.0	60.0	55.5
Hourly means.	28.9	27.7	26.8	67.7	85.7	77.4	45.5	31.7

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6 .	9h.
1872.	°	°	°	°	°	°	°	°
April 1	43.0	41.0	36.5	85.0	81.0	67.0	44.5	37.5
2	32.0	32.5	35.5	99.5	118.0	116.0	53.2	43.0
3	40.5	41.0	39.0	54.0	59.2	73.0	58.0	47.5
4	34.0	30.0	30.0	90.5	111.0	109.0	52.0	34.5
5	32.0	26.0	27.0	98.3	115.2	114.0	54.0	39.2
6	32.0	30.0	30.0	88.0	100.0	97.0	56.0	53.0
7	49.0	47.0	45.2	50.0	64.0	70.0	58.0	54.0
8	54.5	53.0	52.0	64.0	88.0	101.0	60.0	50.0
9	48.0	49.0	50.5	64.0	85.5	89.5	72.0	64.0
10	60.0	55.0	54.0	108.0	121.5	121.0	75.0	53.0
11	48.0	47.5	43.0	114.0	124.2	125.0	72.0	52.0
12	45.5	43.0	42.0	107.0	105.0	71.0	60.2	58.0
13	57.0	57.0	56.5	73.0	124.5	129.0	75.5	52.0
14	49.5	44.5	50.0	110.5	128.3	124.0	70.0	45.5
15	44.0	42.0	42.0	45.0	43.0	42.0	41.0	41.0
16	40.0	38.0	36.5	84.0	109.0	107.0	58.5	33.0
17	29.0	27.0	29.0	97.5	109.0	90.5	55.5	43.0
18	42.0	43.0	45.0	60.0	65.0	54.5	53.2	51.5
19	50.8	50.0	47.5	86.0	118.0	111.0	67.0	45.5
20	41.0	40.0	42.0	89.0	92.5	90.0	59.1	53.0
21	48.0	43.0	45.0	109.0	129.0	124.0	64.0	54.5
22	51.5	53.0	57.0	107.2	118.0	113.8	57.5	41.0
23	31.0	28.0	30.5	105.5	119.5	118.5	59.0	43.0
24	41.0	38.0	40.0	109.0	128.0	123.0	67.0	52.0
25	49.0	47.0	47.0	110.0	136.2	129.2	71.5	58.0
26	53.0	50.0	52.5	122.0	133.0	121.0	73.0	67.0
27	60.5	60.0	59.0	110.0	135.0	129.5	71.2	63.0
28	58.0	54.5	52.0	76.0	64.0	87.0	59.0	43.0
29	42.0	41.0	38.0	107.5	127.0	122.0	61.8	46.0
30	46.0	39.0	43.5	110.0	129.0	119.0	64.0	50.5
Hourly means.	45.1	43.0	43.3	91.1	106.0	103.0	61.4	48.9

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
May 1	49.5	48.5	58.5	107.0	126.2	89.0	69.0	62.5
2	61.5	62.5	61.0	103.0	134.0	97.0	68.5	55.0
3	47.0	44.0	45.0	108.0	126.0	125.0	63.0	59.0
4	47.0	40.0	41.0	109.0	109.0	118.5	56.0	39.0
5	33.5	33.0	38.0	110.0	126.2	122.0	58.0	45.0
6	44.0	43.0	52.0	119.0	101.0	135.2	88.5	68.0
7	54.0	47.5	47.5	118.0	137.0	137.0	78.0	69.0
8	65.0	57.0	58.0	124.5	142.0	137.0	80.0	60.0
9	55.5	55.0	63.0	107.0	114.0	103.0	78.5	65.5
10	60.0	58.5	63.0	125.0	142.2	137.0	80.2	60.6
11	58.0	52.0	58.0	128.0	145.0	130.0	73.5	70.0
12	64.0	52.0	57.0	97.0	134.0	124.5	80.5	57.0
13	64.5	54.5	60.0	121.0	139.0	132.0	75.0	48.0
14	44.0	40.0	49.0	113.0	133.5	132.0	70.0	50.0
15	48.0	46.0	55.1	117.0	134.0	115.0	83.0	61.0
16	60.0	60.0	58.0	103.0	129.5	131.0	75.2	50.0
17	47.5	44.5	49.5	102.0	122.0	110.1	66.0	58.0
18	55.5	50.5	60.0	81.2	86.0	62.0	60.5	60.2
19	61.0	62.0	63.0	74.0	135.0	135.5	78.0	64.0
20	50.0	53.0	55.5	128.0	123.0	131.2	76.0	60.0
21	55.5	50.0	55.0	122.0	126.0	114.0	79.0	54.0
22	49.5	49.5	55.0	117.0	135.0	101.0	65.5	60.5
23	59.0	61.5	68.0	111.1	132.0	131.0	79.5	57.5
24	52.0	45.0	55.0	108.0	126.9	131.0	81.0	67.0
25	66.0	65.0	67.0	93.2	105.0	79.0	67.0	58.0
26	57.6	48.0	60.0	91.0	107.1	133.0	73.5	49.0
27	47.0	44.5	50.0	124.0	139.0	67.0	59.0	51.5
28	49.0	50.5	52.0	123.0	138.2	107.5	73.8	50.9
29	47.5	47.5	48.0	118.7	132.0	131.0	77.0	59.0
30	59.0	55.5	67.2	109.5	98.0	78.0	70.0	58.0
31	55.0	52.0	51.2	120.0	120.5	122.5	77.0	48.0
Hourly means.	53.7	50.7	55.5	110.7	125.7	116.1	72.9	57.3

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
June 1	46.0	44.0	50.0	123.0	127.0	115.0	81.0	64.5
2	62.0	59.5	59.5	119.0	134.0	98.5	78.5	52.0
3	51.0	50.0	65.0	114.0	126.0	100.0	68.0	58.0
4	57.0	57.0	57.0	67.0	75.2	71.0	73.5	56.0
5	52.5	51.5	50.0	114.0	82.0	129.0	69.0	60.0
6	60.0	56.0	52.5	116.0	137.0	137.0	82.5	56.0
7	57.0	58.0	68.0	88.0	126.0	88.5	85.0	66.0
8	70.0	64.5	72.5	124.0	147.0	121.0	84.0	67.5
9	63.0	60.5	62.0	124.0	122.0	142.0	89.0	72 0
10	70.5	64.0	70.0	116.0	85.0	78.0	81.0	56.0
11	55.0	57.0	58.0	125.0	138.0	136.0	82.0	60.0
12	58.0	55.0	61.0	132.0	144.0	143.7	88.0	65.0
13	64.0	63.5	68.0	128.0	142.0	139.2	90.0	67.2
14	67.0	64.0	68.0	133.0	139.5	124.0	72.0	60.0
15	56.5	53.0	64.0	121.0	110.0	98.0	72.0	64.5
16	65.0	65.0	67.0	124.0	131.0	142.0	72.0	62.0
17	58.0	56.5	64.0	110.0	135.0	118.0	82.2	60.5
18	57.0	56.0	62.0	120.0	104.0	145.2	80.0	63.0
19	60.0	58.0	68.0	120.2	137.0	133.0	80.0	61.1
20	58.5	57.0	67.3	104.0	138.0	139.0	85.5	68.0
21	65.0	63.5	66.0	126.5	144.0	139.0	87.0	73.0
22	72.0	70.0	70.5	102.0	122.2	140.0	88.0	70.0
23	64.0	62.0	67.0	127.5	139.0	138.0	85.0	73.5
24	71.0	69.5	76.0	73.0	74.9	79.2	86.0	70.0
25	69.0	69.0	72.6	99.0	143.0	138.5	79.0	71.0
26	67.5	66.5	69.0	116.0	123.0	113.0	84.0	73.0
27	69.0	67.0	70.0	126.0	141.0	136.2	104.0	78.0
28	71.0	67.0	70.0	129.5	150.5	94.0	84.0	70.0
29	69.5	69.0	72.0	99.0	150.9	151.0	92.0	75.0
30	70.5	69.5	75.0	132.0	147.0	130.0	97.0	76.0
Hourly means.	62.6	60.8	65.4	115.1	127.2	121.9	82.7	65.6

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
July 1	73.0	71.0	76.9	134.0	135.0	144.5	97.0	78.0
2	75.0	73.0	77.0	135.0	152.0	106.0	96.0	76.0
3	72.0	72.0	76.5	138.0	150.0	143.0	89.0	75.0
4	75.0	71.5	73.5	91.0	147.0	128.0	83.5	73.0
5	71.5	70.5	72.0	130.0	137.5	145.0	86.0	74.0
6	69.0	67.5	69.5	128.0	149.5	130.0	103.0	74.0
7	73.0	68.0	74.0	107.2	99.0	113.0	93.0	73.0
8	69.0	68.0	76.0	99.0	130.5	150.0	99.0	72.0
9	70.0	71.0	77.0	114.0	152.0	125.5	85.5	75.0
10	73.0	71.0	81.5	143.0	140.0	155.0	102.0	80.0
11	73.0	73.0	77.0	145.0	141.0	84.9	85.0	72.0
12	71.5	71.0	74.5	102.0	116.0	100.0	86.0	70.0
13	67.2	66.0	73.0	125.0	125.0	130.0	94.0	76.0
14	73.0	72.5	76.0	108.0	128.5	143.0	86.0	74.0
15	72.0	70.2	77.0	105.0	122.5	134.0	85.2	74.5
16	73.0	73.0	76.5	125.0	130.0	106.0	89.2	75.0
17	70.5	72.0	77.0	91.0	136.9	149.0	94.5	77.0
18	73.0	72.0	75.2	134.0	145.0	119.0	80.5	76.0
19	75.5	73.2	74.0	109.0	145.1	137.0	96.0	70.0
20	62.0	60.8	62.0	130.0	145.0	143.5	103.0	65.0
21	62.0	60.0	63.0	126.0	137.2	107.5	84.0	75.5
22	70.2	69.0	68.0	124.0	143.0	142.1	86.0	65.0
23	60.0	65.0	69.5	93.0	99.0	92.0	91.0	67.0
24	66.5	68.0	73.0	134.0	124.2	131.0	119.0	71.0
25	66.0	61.0	66.0	126.5	133.0	138.2	87.6	78.0
26	74.5	72.0	75.0	136.0	154.0	130.5	102 5	77.0
27	76.0	70.0	68.0	127.0	144.0	145.2	105.2	66.0
28	63.0	61.0	63.0	133.0	162.0	113.0	108.5	67.0
29	65.0	63.5	77.0	97.0	111.0	112.0	105.0	74.0
30	69.0	65.0	69.5	130.0	148.5	143.0	108.0	69.5
31	71.0	69.5	76.0	103.5	102.0	94.0	100.0	74.0
Hourly means.	70.1	68.8	73.0	120.1	135.0	126.9	94.5	73.0

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
August 1	71.0	70.0	67.5	126.5	147.5	148.5	103.5	70.0
2	70.0	69.5	71.2	88.0	92.0	145.0	105.5	72.0
3	69.0	69.2	68.0	122.0	142.0	113.0	111.0	67.0
4	64.0	63.2	65.0	127.0	145.0	130.0	106.8	67.5
5	68.0	65.0	67.0	121.0	136.2	140.0	92.0	75.0
6	73.0	70.0	72.0	87.0	141.0	142.0	82.0	70.0
7	66.0	64.0	67.0	125.5	145.0	145.5	93.1	73.0
8	67.5	64.0	67.0	127.0	145.0	145.0	86.0	72.5
9	67.0	64.0	64.0	126.1	149.0	146.0	91.0	73.5
10	70.0	68.0	70.0	126.0	150.0	144.0	90.0	76.8
11	73.0	71.0	72.0	126.0	145.0	146.2	77.0	73.0
12	72.5	71.5	76.0	125.2	147.0	149.0	87.5	76.5
13	73.5	72.0	72.0	125.0	145.0	123.0	86.1	79.5
14	77.5	72.0	74.0	129.5	151.0	126.5	84.0	72.0
15	71.2	71.5	73.8	123.0	145.0	118.6	70.0	71.0
16	70.0	69.5	70.5	104.5	76.0	92.0	74.0	73.0
17	72.0	71.5	73.0	121.5	139.0	140.0	85.5	72.8
18	71.0	69.0	71.0	122.0	125.0	109.0	87.2	75.5
19	70.5	69.0	73.5	126.0	144.5	117.0	87.0	77.0
20	73.5	72.0	76.2	124.5	131.5	141.5	86.0	74.5
21	73.0	70.0	74.5	126.0	142.0	138.5	85.8	75.0
22	73.0	73.0	75.2	127.0	145.0	145.0	84.0	78.5
23	75.0	70.0	71.5	127.5	136.0	141.0	80.5	66.0
24	66.0	63.5	67.5	81.0	103.0	142.5	75.5	67.0
25	67.0	65.0	68.5	122.0	128.2	138.0	83.0	74.2
26	70 0	69.6	60.0	131.0	136.0	143.0	124.0	74.0
27	69.5	70.0	72.0	114.0	140.0	94.0	80.0	73.0
28	66.0	60.0	58.0	120.0	136.4	100.5	73.2	70.0
29	67.0	64.0	64.0	68.0	72.0	74.0	70.0	71.0
30	70.5	68.0	66.0	76.0	129.0	128.0	65.0	57.5
31	50.0	46.0	49.0	116.0	132.0	130.0	65.0	63.0
Hourly means.	69.6	67.6	69.2	116.5	133.6	130.2	86.2	72.0

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Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
September 1	55.5	51.5	52.0	120.5	134.4	125.0	74.7	59.0
2	57.0	54.5	58.0	109.0	140.5	92.0	72.6	66.5
3	60.0	57.0	57.0	114.5	129.5	127.0	60.5	58.0
4	48.5	43.0	46.0	103.0	130.0	127.5	64.0	56.0
5	53.5	54.0	55.0	66.0	88.5	72.0	63.0	60.0
6	61.0	60.0	60.2	104.0	120.0	136.2	78.0	71.0
7	69.0	67.0	68.0	119.0	142.0	138.5	80.5	73.0
8	68.0	69.0	67.5	119.9	144.0	140.5	78.0	71.3
9	69.5	67.0	67.0	123.5	144.5	144.2	82.3	71.6
10	70.0	70.0	70.5	95.0	124.0	79.0	68.5	67.5
11	67.5	67.0	67.0	76.0	85.9	78.0	73.5	67.0
12	66.0	70.0	72.0	95.0	128.0	90.0	72.0	70.0
13	70.5	65.0	66.0	107.0	117.0	99.0	70.0	66.0
14	62.5	60.0	59.0	86.2	124.0	123.0	56.0	50.5
15	49.0	48.0	52.0	68.0	101.0	124.0	61.2	60.0
16	59.5	51.0	50.0	115.2	129.0	129.5	56.5	52.5
17	47.5	44.5	44.0	116.2	131.0	128.0	60.5	56.0
18	56.0	49.0	49.0	118.5	135.5	122.0	56.1	57.5
19	51.5	50.0	57.0	102.5	135.0	117.0	59.2	50.0
20	48.0	46.0	50.0	112.5	130.0	122.2	53.0	46.5
21	45.2	45.5	45.5	99.8	134.0	128.0	66.5	57.5
22	57.0	52.0	54.0	115.0	138.0	130.0	70.0	62.5
23	62.0	64.5	59.0	92.1	129.0	132.5	67.2	60.0
24	60.0	54.0	60.0	119.0	139.5	132.0	69.0	64.0
25	60.0	66.0	68.0	84.0	112.0	78.0	70.0	63.5
26	66.0	65.0	64.0	116.0	138.2	124.0	66.0	66.0
27	60.0	57.0	55.0	115.2	133.0	104.5	57.5	50.0
28	46.0	44.0	44.0	110.0	123.0	93.0	54.2	54.5
29	52.0	50.5	56.5	75.0	81.0	105.0	67.0	62.5
30	50.0	51.5	49.0	115.7	96.3	91.0	62.5	60.0
Hourly means.	58.3	56.4	57.4	103.8	124.6	114.4	66.3	61.0

Mean Time.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
October 1	58.0	55.0	51.0	109.0	120.0	86.0	51.0	49.0
2	44.0	42.5	42.5	106.0	122.0	85.0	56.0	49.0
3	47.6	45.0	46.5	75.5	122.7	95.0	63.0	64.0
4	62.0	56.0	52.5	74.6	83.0	78.5	60.2	55.5
5	54.5	52.0	58.0	92.5	120.0	91.0	69.0	65.2
6	64.8	64.0	65.0	86.0	116.2	100.0	69.5	65.5
7	62.0	61.5	61.0	77.0	92.5	59.5	59.8	59.0
8	55.5	49.0	49.0	109.0	123.5	78.0	49.9	46.0
9	43.0	42.5	41.0	102.0	120.0	115.0	53.0	50.0
10	47.0	47.0	44.0	108.0	123.0	119.0	63.0	51.0
11	45.0	42.5	41.0	103.1	93.5	62.0	46.9	43.9
12	35.9	31.0	31.0	96.7	112.2	87.3	45.5	47.0
13	47.0	47.0	47.0	64.0	72.0	73.5	43.5	43.0
14	40.0	38.0	40.0	67.5	87.0	102.0	41.5	41.2
15	40.0	32.0	32.5	98.0	113.0	100.0	41.0	42.0
16	43.2	40.0	38.0	98.0	110.6	104.5	55.5	48.0
17	45.0	43.5	43.0	73.1	88.4	81.0	56.2	54.0
18	50.5	49.5	52.5	55.7	71.5	72.5	55.0	48.0
19	39.0	37.5	36.0	102.5	112.0	66.6	44.0	44.0
20	38.0	34.2	30.0	100.5	114.0	108.0	43.5	38.0
21	36.0	35.0	34.0	100.0	115.2	100.2	52.0	47.0
22	43.5	40.6	42.0	103.0	116.0	83.0	58.0	57.0
23	55.5	56.0	55.1	69.5	71.5	62.2	59.0	55.0
24	53.0	49.5	49.0	50.2	53.5	52.0	52.0	51.0
25	50.5	50.5	50.0	57.5	63.0	61.0	60.0	63.0
26	56.0	54.0	54.0	107.5	110.0	79.2	60.0	53.5
27	49.0	46.0	45.0	108.3	92.0	86.2	58.5	54.6
28	50.5	50.0	51.0	58.0	58.0	56.0	49.8	40.5
29	36.5	34.0	33.0	90.0	107.5	92.5	40.5	34.0
30	32.0	31.0	30.5	81.5	68.5	67.0	39.0	42.5
31	42.5	40.0	34.0	62.2	113.0	70.5	37.0	35.0
Hourly means.	47.3	45.0	44.5	86.7	99.5	83.0	52.7	49.6

Mean Time.	0h.	3 .	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
November 1	34.0	33.5	36.5	96.0	114.0	70.0	45.5	37.0
2	35.0	34.0	33.2	54.0	63.8	55.0	44.0	45.0
3	45.0	44.0	43.0	93.0	71.0	66.0	47.2	36.0
4	35.0	34.5	32.3	94.8	107.0	86.2	40.0	37.0
5	35.0	33.5	31.5	85.7	. .	64.6	48.5	48.0
6	47.1	48.0	48.0	50.5	66.0	54.0	53.0	53.0
7	52.5	50.7	47.8	91.0	96.0	72.1	50.0	48.5
8	48.0	47.0	42.0	97.5	89.0	70.0	39.0	35.5
9	33.0	30.0	30.0	74.0	65.6	60.0	38.7	32.0
10	31.7	30.6	26.5	88.4	108.0	78.5	41.5	34.9
11	32.6	34.3	39.0	55.8	66.3	63.0	50.0	49.0
12	52.5	54.5	52.5	63.0	63.0	68.2	72.5	44.0
13	35.0	34.0	33.5	54.0	62.0	60.0	42.5	44.0
14	43.5	42.5	43.5	48.8	65.0	51.0	44.0	44.0
15	40.0	34.0	27.0	85.0	82.0	51.5	32.0	27.5
16	28.0	30.0	29.0	47.2	61.0	39.0	29.5	25.0
17	24.5	24.0	24.0	82.5	97.0	52.8	27.5	25.0
18	25.0	24.5	24.0	51.9	63.5	56.0	28.5	25.0
19	23.0	20.5	18.5	72.0	100.0	55.2	40.0	37.0
20	35.0	32.0	33.5	55.7	55.0	58.0	26.0	21.0
21	20.0	15.0	15.0	71.0	84.0	50.0	30.0	28.5
22	27.5	26.0	26.5	40.0	51.0	47.2	33.0	33.5
23	33.0	37.5	35.0	78.7	98.0	59.2	35.0	33.0
24	31.0	27.0	26.0	76.5	103.0	60.0	40.3	38.5
25	38.0	39.5	40.0	57.2	94.0	63.0	53.5	52.0
26	48.0	43.0	38.0	42.0	44.0	42.8	38.5	33.5
27	29.0	26.5	24.0	71.0	95.2	56.8	32.8	25.0
28	26.5	23.5	19.0	79.5	94.2	52.5	27.0	29.0
29	30.0	29.0	28.0	35.0	64.0	34.0	16.0	14.0
30	12.0	10.0	11.0	68.0	84.9	35.2	17.0	12.5
Hourly means.	34.4	33.1	31.9	68.7	79.6	57.7	38.8	34.9

Mean Time.	0 .	3 .	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
December 1	12.0	10.0	11.0	68.0	84.9	35.2	17.0	12.5
2	37.0	35.0	33.0	83.0	102.8	66.2	46.0	42.0
3	38.0	33.0	32.0	43.5	99.5	53.0	33.7	36.5
4	26.0	25.5	26.5	76.5	98.1	52.0	28.0	24.5
5	22.5	23.0	24.5	32.0	37.0	39.0	26.0	25.0
6	23.0	22.5	22.0	62.0	88.0	49.0	35.1	35.5
7	30.0	30.0	30.0	63.0	90.0	53.5	34.0	26.5
8	25.0	30.0	33.0	40.0	46.0	58.0	37.0	36.5
9	35.0	33.0	31.2	37.0	84.9	36.0	21.0	17.5
10	14.5	12.5	14.0	66.0	83.5	32.0	20.0	15.5
11	18.0	21.0	21.9	27.0	77.5	42.5	27.0	23.0
12	21.0	20.0	20.0	50.5	88.0	26.5	22.5	21.0
13	20.5	17.5	18.0	46.0	96.0	42.0	24.5	25.5
14	19.0	18.0	17.5	59.5	102.2	56.0	31.0	27.5
15	27.2	28.0	29.0	43.0	67.0	63.0	42.0	39.0
16	29.0	28.0	27.0	36.8	41.7	39.0	34.3	34.5
17	33.8	30.8	31.0	56.0	75.0	47.0	28.0	29.5
18	28.5	28.0	27.5	33.6	36.0	36.0	58.0	31.0
19	28.5	27.0	25.0	43.0	50.2	38.0	29.9	27.5
20	26.0	26.3	32.0	38.0	41.1	39 0	35.0	34.5
21	31.0	26.0	20.5	50.0	88.2	46.0	27.0	28.0
22	26.0	14.5	6.5	37.0	75.0	29.0	9.0	8.0
23	14.0	22.0	22.0	51.0	81.5	46.0	29.0	30.0
24	23.0	13.0	7.0	21.0	32.0	35.0	10.0	4.5
25	4.0	3.0	6.5	15.0	24.2	18.0	12.5	13.0
26	15.0	16.5	15.6	26.0	58.0	39.0	18.5	18.0
27	19.0	16.0	13.0	23.0	80.0	54.5	13.2	13.0
28	9.0	7.0	9.0	43.0	74.5	46.5	15.0	9.9
29	12.0	14.0	16.0	30.0	94.0	48.0	27.6	27.0
30	26.0	25.5	25.0	41.5	73.5	50.0	28.5	28.8
31	30.8	31.0	32.5	39.5	61.0	48.0	36.0	35.0
Hourly means.	23.4	22.2	21.9	44.6	72.0	44.0	27.6	25.2

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MONTHLY MAXIMUM AND MINIMUM CORRECTED READINGS OF THE BAROMETER AT THE HOURS OF OBSERVATION IN 1872.

Month.	Day and Hour.	Maximum.	Day and Hour.	Minimum.	Range.
	d. h.	in.	d. h.	in.	in.
January	2 9 a. m.	30.450	28 3 a. m.	29.537	0.913
February	7 Noon.	30.522	13 9 p. m.	29.474	1.048
March	25 9 a. m.	30.349	31 6 p. m.	29.280	1.069
April	30 9 a. m.	30.262	19 0 a. m.	29.434	0.828
May	5 9 a. m.	30.290	19 6 a. m.	29.401	0.889
June	20 9 a. m.	30.162	4 3 p. m.	29.540	0.622
July	9 9 a. m.	30.116	22 3 a. m.	29.632	0.484
August	5 9 a. m.	30.179	30 3 a. m.	29.581	0.598
September	24 9 a. m.	30.163	19 6 a. m.	29.671	0.492
October	29 9 a. m.	30.471	14 6 a. m.	29.574	0.897
November	17 6 p. m.	30.487	7 3 p. m.	29.532	0.955
December	30 9 a. m.	30.500	9 0 a. m.	29.543	0.957

	in.
Maximum for the year, February 7, noon	30.522
Minimum for the year, March 31, 6h p. m.	29.280
Range for the year	1.242
Mean monthly range	0.896

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MAXIMUM AND MINIMUM TEMPERATURES DURING THE YEAR 1872.

Day.	January.		February.		March.		April.		May.		June.		July.		August.		September.		October.		November.		December.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
1	53.2	40.5	29.6	4.5	40.8	15.2	65.0	38.2	74.0	51.5	78.0	50.5	97.0	74.5	94.5	68.0	80.7	52.0	67.0	49.5	60.0	39.0	39.4	14.3
2	43.0	29.5	34.5	9.7	37.6	19.0	62.0	34.5	77.0	58.6	76.0	58.0	98.5	75.5	90.7	72.0	83.5	57.5	68.5	45.0	51.5	35.0	56.5	35.5
3	39.0	31.5	30.7	24.5	38.5	17.0	62.5	41.5	69.3	44.8	73.0	59.0	98.0	75.0	87.0	67.5	74.5	53.5	79.5	46.0	55.8	39.5	47.0	29.5
4	44.0	35.5	41.6	27.0	43.0	25.0	59.5	31.8	60.0	43.0	71.0	56.3	96.2	74.5	87.6	66.0	77.0	48.8	70.5	57.0	59.0	36.2	41.8	24.0
5	43.5	36.0	48.5	22.0	32.5	7.5	58.0	29.5	69.0	39.2	72.0	51.5	93.5	72.5	89.5	66.0	66.0	56.0	75.2	54.6	59.5	33.0	35.5	23.0
6	43.7	30.5	42.5	31.5	29.5	10.0	62.0	34.0	85.0	46.2	84.5	52.0	91.5	72.0	87.3	70.5	87.0	61.3	82.2	64.5	53.5	47.5	47.0	24.0
7	40.0	27.2	40.6	23.8	38.5	18.5	59.5	45.7	89.5	48.0	80.8	63.5	89.2	71.0	91.6	67.0	94.0	69.0	72.0	57.2	62.	47.0	46.8	27.0
8	29.0	24.0	40.6	18.5	34.0	31.0	65.3	49.5	89.0	60.0	87.5	69.5	90.6	70.0	92.5	68.5	94.5	69.0	67.0	50.0	62.0	38.0	48.2	29.0
9	43.3	24.8	37.0	30.7	35.6	29.0	75.0	49.0	86.6	60.0	89.8	62.5	90.2	71.2	93.5	69.5	95.2	69.0	70.0	43.5	51.3	32.8	48.0	19.0
10	39.5	24.5	43.8	31.5	40.5	33.6	68.0	53.0	89.0	61.0	81.5	63.0	98.5	75.0	96.5	71.0	77.5	69.5	77.5	49.0	56.0	31.0	27.5	15.5
11	41.0	25.0	52.0	35.0	37.5	26.5	75.0	45.0	89.0	62.5	86.0	59.5	95.0	72.5	96.2	71.0	78.5	67.5	55.4	44.6	54.0	37.0	31.8	18.5
12	58.5	31.0	45.6	31.0	39.6	30.5	72.0	45.0	84.5	61.0	91.0	60.0	84.5	69.9	99.0	74.0	80.5	67.5	59.5	35.5	65.0	39.5	33.5	20.5
13	52.0	37.2	42.6	36.0	43.0	24.8	70.8	57.5	77.8	58.5	88.6	67.0	92.0	70.0	98.2	73.0	79.3	65.5	59.5	44.0	49.9	36.0	38.5	17.2
14	44.0	22.0	29.0	20.5	50.0	34.8	69.6	48.2	77.0	47.0	93.6	62.0	93.4	72.2	98.0	74.0	73.4	54.2	55.8	39.2	48.0	43.0	50.0	20.0
15	30.7	14.8	26.5	9.0	46.0	31.5	55.0	38.8	79.2	51.5	76.5	59.8	89.3	74.9	90.0	72.0	70.0	51.0	59.8	37.0	43.0	30.0	52.0	30.0
16	38.0	25.0	44.5	20.2	37.2	22.0	50.5	36.0	78.0	58.0	82.5	60.0	91.5	75.0	78.5	71.0	74.5	54.3	69.0	43.5	35.5	26.7	45.8	26.5
17	34.5	28.0	41.0	29.5	37.0	29.5	58.0	30.5	72.5	46.4	80.1	59.5	95.2	74.0	89.2	71.5	77.5	49.5	63.9	44.0	40.5	26.0	39.0	30.0
18	40.8	19.0	39.0	19.0	49.0	26.0	53.8	44.0	67.0	55.0	84.2	60.0	96.4	74.5	90.0	71.0	77.2	54.5	60.2	53.0	44.0	26.0	35.0	27.0
19	37.0	28.0	45.2	27.5	62.5	37.5	64.8	47.5	80.0	61.6	84.2	62.0	92.4	69.0	92.5	72.5	77.0	57.0	72.5	40.0	48.6	21.0	36.5	24.5
20	49.4	32.5	52.5	21.7	44.0	23.5	66.5	43.0	82.5	59.0	87.3	61.0	90.0	64.0	94.3	74.0	73.5	51.6	61.5	34.6	40.8	23.0	38.7	31.5
21	44.0	35.0	49.3	32.2	35.0	16.5	71.9	43.6	79.5	52.5	90.5	65.0	90.5	63.8	93.2	72.5	82.5	8.0	70.5	37.0	41.3	18.0	35.0	28.0
22	39.5	24.0	42.5	29.5	41.5	21.2	58.7	52.5	82.0	52.5	92.8	69.0	88.0	68.0	97.4	75.0	89.0	57.5	71.5	45.5	39.5	28.0	29.0	4.0
23	37.5	31.0	42.7	20.3	44.5	29.5	59.5	33.0	76.3	58.5	89.5	65.5	86.0	65.0	90.5	68.5	85.0	60.5	64.5	54.0	50.6	36.0	40.0	14.0
24	24.8	14.0	64.2	31.6	49.0	27.0	73.0	42.0	80.5	52.5	77.0	69.0	93.4	69.8	88.2	67.0	87.5	62.0	52.5	48.5	58.5	30.0	38.5	7.0
25	32.8	13.4	56.5	43.0	46.6	25.2	80.0	47.8	73.3	63.5	86.0	69.0	91.5	65.8	91.7	68.6	81.0	68.0	60.0	49.5	60.5	40.9	15.0	5.3
26	37.7	14.5	42.5	28.5	46.0	36.0	88.0	53.5	76.5	54.5	85.6	68.0	99.2	75.0	95.0	71.5	79.0	59.0	67.2	53.5	51.8	36.0	19.5	12.0
27	34.5	17.0	44.5	21.1	56.0	38.0	80.0	62.5	82.0	53.0	89.0	69.0	91.2	68.0	91.6	72.0	75.5	55.5	66.5	47.6	51.5	27.5	21.5	11.5
28	36.5	28.5	42.5	25.2	63.0	32.0	60.0	50.0	75.6	53.6	90.8	69.0	91.5	64.0	82.5	63.0	71.0	47.0	54.3	42.8	39.5	22.0	27.5	8.2
29	30.5	9.8	30.8	25.0	68.3	42.5	71.2	41.3	76.5	50.0	93.0	70.5	91.0	67.0	72.0	64.5	75.2	55.5	55.0	36.0	32.6	14.5	34.0	14.0
30	22.5	8.0	. .	. .	62.0	41.7	71.0	43.0	74.5	59.0	94.5	70.3	93.5	67.0	76.0	57.0	71.5	52.0	51.4	33.0	29.0	13.0	34.0	25.0
31	29.2	1.0	. .	. .	70.8	39.8	. .	. .	75.5	52.5	. .	. .	90.7	72.0	77.0	51.7	. .	. .	54.5	39.0	. .	. .	43.2	30.0
Mean .	39.1	24.6	42.2	25.2	45.1	27.1	66.2	43.7	78.3	54.0	84.6	62.7	92.6	70.7	90.1	69.1	82.3	58.1	65.0	45.7	49.8	31.8	37.9	20.8
Mean temp.	31.8		33.7		36.1		55.0		66.2		73.6		81.6		79.6		70.2		55.4		40.8		29.4	

Mean temperature for the year from the maximum and minimum thermometers, 54°.45.

Hosted by Google

MONTHLY MAXIMUM AND MINIMUM TEMPERATURES IN 1872.

Month.	Maximum.		Minimum.		Range.
	Day.	Temperature.	Day.	Temperature.	
		°		°	°
January	12	58.5	31	1.0	57.5
February	24	64.2	1	4.5	59.7
March	31	70.8	5	7.5	63.3
April	26	88.0	5	29.5	58.5
May	7	89.5	5	39.2	50.3
June	30	94.5	1	50.5	44.0
July	26	99.2	21	63.8	35.4
August	12	99.0	31	51.7	47.3
September	9	95.2	28	47.0	48.2
October	6	82.2	30	33.0	49.2
November	12	65.0	30	13.0	52.0
December	2	56.5	22	4.0	52.5

	°
Maximum temperature for the year, July 26	99.2
Minimum temperature for the year, January 31	1.0
Range for the year	98.2

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872.						1872.						1872.					
Jan. 1	0	S.	1	C. K.	8	Jan. 2	0	NW.	1	C. K.	3	Jan. 3	0	E.	1	K.	10
	3	SW.	1	Fog			3	NW.	1	K.	10		3	NE.	1	Mist	10
	6	S. SW.	1	Fog			6	W. SW.	1	Clear	0		6	NE.	1	Snow	10
	9	SW.	1	N.	10		9	NW.	1	Clear	0		9	N. NE.	1	Hail	10
	Noon	N.	1	N.	10		Noon	SE.	1	C. K.	1		Noon	W.	1	Fog	10
	3	N.	2	C. K.	9		3	SE.	1	C. K.	2		3	W.	1	Fog	10
	6	N.	2	C. K.	6		6	SE.	1	S.	1		6	W.	1	Fog	10
	9	NW.	1	Clear	0		9	E.	1	K.	10		9	SW.	1	Fog	10
Jan. 4	0	NW.	1	N.	10	Jan. 5	0	NW.	4	K.	10	Jan. 6	0	NW.	1	Clear	0
	3	W.	1	C. K.	9		3	NW.	4	C. K.	9		3	NW.	1	Clear	0
	6	NW.	1	K.	10		6	NW.	3	C. K.	10		6	NW.	1	C. K.	6
	9	NW.	1	C. K. S.	10		9	NW.	3	C. K.	5		9	W. NW.	2	C. K.	9
	Noon	NW.	3	C. K.	10		Noon	NW.	3	C. K.	5		Noon	NW.	2	C. K.	8
	3	NW.	3	C. K.	8		3	NW.	3	C. K.	2		3	W.	2	C. K.	8
	6	NW.	1	C. K.	4		6	NW.	1	C. S.	1		6	NW.	2	C. K.	10
	9	NW.	3	K.	10		9	NW.	1	Clear	0		9	NW.	2	C. K.	10
Jan. 7	0	NW.	1	C. K.	10	Jan. 8	0	N.	2	C. K.	7	Jan. 9	0	N.	1	Snow	10
	3	NW.	2	C. K.	10		3	N.	2	C. K.	9		3	NW.	1	K.	10
	6	NW.	1	C. K.	10		6	E.	1	Sleet	10		6	NW.	1	C. K.	6
	9	NW.	2	C. S.	2		9	E.	1	Hail	10		9	NW.	1	Haze	
	Noon	N.	1	S.	1		Noon	N. NE.	1	Hail	10		Noon	NW.	2	Haze	
	3	N.	1	C. K. S.	6		3	NE.	1	K.	10		3	NW.	2	Clear	0
	6	NW.	1	C. K.	10		6	NE.	1	Snow	10		6	W. SW.	1	Clear	0
	9	NW.	2	K.	10		9	NE.	1	Snow	10		9	SW.	1	K.	10
Jan. 10	0	NW.	1	K.	10	Jan. 11	0	S. SW.	1	Fog		Jan. 12	0	W.	1	C. K.	8
	3	SW.	1	C.	4		3	SW.	1	Fog			3	W.	3	Clear	0
	6	SW.	1	C. K.	10		6	NW.	1	Fog			6	NW.	1	Clear	0
	9	W.	1	C. K.	6		9	W.	1	Fog			9	W.	1	Clear	0
	Noon	S. SW.	1	Haze			Noon	W.	1	Fog			Noon	W.	2	C. K.	1
	3	S. SE.	1	C.	2		3	W. SW.	1	Fog			3	W. NW.	1	C. K.	7
	6	S.	1	C. S.	1		6	SW.	1	K.	10		6	W. NW.	1	C. S.	2
	9	SW.	1	Fog			9	SW.	1	Fog			9	NW.	1	Clear	0
Jan. 13	0	SW.	1	Haze		Jan. 14	0	W.	3	C. K.	3	Jan. 15	0	NW.	1	Clear	0
	3	SW.	1	Haze			3	NW.	3	C. K.	5		3	NW.	1	Clear	0
	6	SW.	1	K.	10		6	NW.	3	C. K.	4		6	NW.	1	Clear	0
	9	W. NW.	1	C. K.	10		9	NW.	3	C. K. S.	2		9	NW.	2	C. K.	8
	Noon	W.	1	C. K.	10		Noon	NW.	3	C. K.	4		Noon	W.	2	C. K.	8
	3	SW.	1	C. S.	4		3	NW.	3	C. K.	4		3	SW.	1	C. K.	8
	6	W.	1	C. K.	10		6	NW.	3	S.	1		6	S. by E.	1	C. K.	10
	9	W. SW.	3	C. K.	6		9	NW.	3	Clear	0		9	S.	1	K.	10

REMARKS.

January 1. Rain during the morning, 0.235 inch.
3. Rain and snow in the morning; amount of rain and melted snow, 0.144 inch.
8. Light sleet at $4^h\ 45^m$ a. m.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force.					Direction.	Force.					Direction.	Force.		
1872.						1872.						1872.					
Jan. 16	0	SE.	2	K.	10	Jan. 17	0	N.	1	K.	10	Jan. 18	0	W.	2	Clear	0
	3	NE.	2	C. K.	10		3	N.	1	K.	10		3	W.	1	Clear	0
	6	NE.	2	K.	10		6	N.	1	K.	10		6	W.	1	Clear	0
	9	N. NW.	1	K.	10		9	NW.	1	C. K.	10		9	W.	1	C. K.	3
	Noon	NE.	1	C. K.	5		Noon	NW.	2	C. K.	8		Noon	E.	1	C. K.	3
	3	NW.	1	C. K.	4		3	NW.	3	C. K.	9		3	SE.	1	C. K.	3
	6	N.	1	C. K.	7		6	NW.	2	Clear	0		6	SW.	1	C. K. S.	9
	9	N. NW.	1	C. K.	9		9	NW.	1	Clear	0		9	NE.	1	C. K.	10
Jan. 19	0	NE.	1	C. K. S.	2	Jan. 20	0	W.	1	K.	10	Jan. 21	0	W.	1	K.	10
	3	NE.	1	Clear	0		3	W.	1	C. K.	4		3	W.	1	K.	10
	6	NE.	1	Haze			6	NW.	1	C. K.	2		6	W.	1	K.	10
	9	NE.	1	K.	10		9	NW.	1	C. K.	2		9	W, NW.	1	N.	10
	Noon	SW.	1	N.	10		Noon	NW.	1	C. K.	6		Noon	NW.	3	C. K.	10
	3	NE.	2	N.	10		3	W. NW.	1	C. K.	9		3	W. NW.	3	C. K.	9
	6	NE.	1	N.	10		6	SW.	1	C. K.	10		6	NW.	3	C. K. S.	2
	9	NW.	1	K.	10		9	S. by W.	1	C. K.	10		9	NW.	2	Clear	0
Jan. 22	0	NW.	2	C. K.	9	Jan. 23	0	SW.	2	C. K.	4	Jan. 24	0	NW.	2	C.	2
	3	NW.	1	C. K.	2		3	SW.	2	C. K.	9		3	NW.	3	C.	2
	6	W. SW.	1	S.	1		6	SW.	2	C. K.	5		6	NW.	3	C. K.	6
	9	S.	1	C.	1		9	W. SW.	1	C. K.	9		9	N. NW.	3	C. K.	9
	Noon	SE.	2	C. K.	6		Noon	NW.	3	C. K.	9		Noon	NW.	3	C. K.	7
	3	S. SW.	2	K.	10		3	W. NW.	2	C. K.	10		3	W. NW.	3	C. K.	9
	6	S.	1	C. K.	8		6	NE.	1	Snow	10		6	NW.	3	C. K. S.	4
	9	SW.	1	C. K.	1		9	NW.	1	K.	10		9	W. NW.	4	C. K.	4
Jan. 25	0	NW.	3	C. K.	2	Jan. 26	0	W. NW.	1	Clear	0	Jan. 27	0	W.	1	C.	2
	3	W. SW.	2	C. K.	1		3	W.	1	C. K.	2		3	W.	1	Clear	0
	6	SW.	1	Clear	0		6	W.	1	C. K.	2		6	W.	1	C. K.	6
	9	W.	1	C. S.	2		9	NW.	1	C.	2		9	W.	1	K.	10
	Noon	W.	2	C. S.	2		Noon	SW.	1	Clear	0		Noon	W.	1	Haze	
	3	W.	3	C.	1		3	SW.	1	Clear	0		3	S. SW.	1	K.	10
	6	W.	2	C. K. S.	1		6	SW.	1	C. K. S.	9		6	SE.	1	K.	10
	9	W. NW.	1	Clear	0		9	SW.	1	C. K.	10		9	SE.	1	Snow	10
Jan. 28	0	SE.	1	Snow	10	Jan. 29	0	SW.	1	C. K.	4	Jan. 30	0	NW.	3	C. K.	5
	3	NE.	1	Snow	10		3	NW.	4	C. K.	9		3	NW.	3	C. K.	6
	6	N. NW.	1	Snow	10		6	NW.	4	Clear	0		6	NW.	1	C. S.	1
	9	N.	1	Snow	10		9	W. NW.	3	Clear	0		9	N. NW.	1	Clear	0
	Noon	W.	1	C. K.	9		Noon	W. NW.	3	Clear	0		Noon	NW.	2	Clear	0
	3	W.	1	C. K.	10		3	W. NW.	3	Clear	0		3	W.	2	Clear	0
	6	W.	1	C. K. S.	4		6	NW.	2	Clear	0		6	W.	1	Clear	0
	9	SW.	1	C. K.	10		9	NW.	2	Clear	0		9	W.	1	Clear	0

REMARKS.

January 17. Light snow in the morning.
19. Rain from 10^h 50^m a. m. to 6^h p. m.; amount, 0.284 inch.
27. Snow from 8^h p. m. to 11^h a. m. on the 28th; depth, 3 inches.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. Jan. 31	0	W. NW.	1	Clear	0
	3	W. NW.	1	Clear	0
	6	W. NW.	1	Clear	0
	9	W. NW.	1	Haze	
	Noon	S.	1	Haze	
	3	NW.	2	C. K.	7
	6	W.	2	C. K.	9
	9	W.	2	C. K.	2
Feb. 1	0	NW.	1	Clear	0
	3	NW.	1	Clear	0
	6	NW.	1	Clear	0
	9	W. NW.	1	Clear	0
	Noon	N. NW.	1	Clear	0
	3	SE.	1	C.	2
	6	S.	1	C. S.	1
	9	SE.	1	Clear	0
Feb. 2	0	SE.	1	Clear	0
	3	W.	1	C. S.	4
	6	W.	1	C. S.	4
	9	N.	1	Haze	
	Noon	N. NE.	1	Haze	
	3	E.	1	Haze	
	6	NE.	1	K.	10
	9	NE.	2	K.	10
Feb. 3	0	NE.	3	Snow	10
	3	NE.	3	Snow	10
	6	NE.	2	Snow	10
	9	N.	2	Hail	10
	Noon	N.	2	Hail	10
	3	N. NW.	2	Mist	10
	6	NW.	3	K.	10
	9	NW.	3	Sleet.	10
Feb. 4	0	NW.	4	Snow	10
	3	NW.	3	C. K.	5
	6	NW.	2	C. K. S.	3
	9	W. NW.	1	C. K.	7
	Noon	NW.	3	C. K.	6
	3	W.	1	C.	4
	6	NW.	1	C. K. S.	6
	9	NW.	1	C.	2
Feb. 5	0	NW.	1	C. K.	10
	3	NW.	1	Clear	0
	6	NW.	2	Clear	0
	9	NW.	1	Haze	
	Noon	W.	1	Haze	
	3	N. NW.	1	C. K.	8
	6	E.	1	C. K. S.	8
	9	E.	1	Haze.	
Feb. 6	0	SE.	1	Haze	
	3	NE.	1	Haze	
	6	SW.	1	C. S.	2
	9	S.	1	C. S.	4
	Noon	S.	1	K.	10
	3	SW.	1	N.	10
	6	W.	1	Fog	
	9	NW.	3	C. K.	8
Feb. 7	0	NW.	3	Clear	0
	3	NW.	2	Clear	0
	6	NW.	2	C. K.	8
	9	N. NW.	2	C. K.	8
	Noon	N. by W.	1	C. K.	5
	3	N. NW.	1	C. K.	8
	6	N.	1	C. K. S.	4
	9	N.	1	C. K.	7
Feb. 8	0	NW.	1	C. K.	8
	3	NW.	1	C. K.	7
	6	N.	1	K.	10
	9	NE.	1	Haze	
	Noon	E.	1	K.	10
	3	N.	1	K.	10
	6	N. NE.	1	K.	10
	9	NE.	1	C. K.	10
Feb. 9	0	NE.	1	K.	10
	3	NE.	1	K.	10
	6	NE.	2	K.	10
	9	N.	2	K.	10
	Noon	N.	2	K.	10
	3	N.	2	K.	10
	6	N.	2	C. K.	10
	9	N	2	Snow.	10
Feb. 10	0	N.	3	Sleet	10
	3	NE.	2	C. K.	9
	6	NW.	2	K.	10
	9	N. NW.	1	C. K.	10
	Noon	NW.	2	C. K.	10
	3	NW.	1	C. K.	10
	6	NW.	2	K.	10
	9	NW.	2	K.	10
Feb. 11	0	NW.	1	C. K.	7
	3	NW.	1	K.	10
	6	NW.	1	K.	10
	9	NW.	1	Haze	
	Noon	NE.	1	C. K.	8
	3	E.	1	C. K.	7
	6	E. SE.	1	C. K. S.	9
	9	SE.	1	Clear	0
Feb. 12	0	NW.	1	Clear	0
	3	NW.	1	C.	4
	6	NW.	1	C. K. S.	5
	9	N.	1	C. K.	10
	Noon	N.	1	C. K.	10
	3	NE.	1	K.	10
	6	E.	1	N.	10
	9	NE.	1	C. K.	10

REMARKS.

February 3. Snow during the day; depth, 3 inches.
5. Aurora borealis visible from 2^h to 4^h a. m.
6. Rain from $10^h\ 55^m$ a. m. to 6^h p. m.; amount, 0.684 inch.
9. Snowing lightly at 9^h p. m.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. Feb. 13	0	NE.	1	C. K.	9	1872. Feb. 14	0	NW.	4	K.	10	1872. Feb. 15	0	NW.	4	Clear	0
	3	NE.	1	C. K.	10		3	NW.	5	C. K.	7		3	NW.	3	Clear	0
	6	NE.	1	K.	10		6	NW.	4	Clear	0		6	NW.	3	C. K. S.	5
	9	N. NE.	1	Fog	10		9	NW.	3	C. K.	4		9	NW.	3	C. K.	4
	Noon	W.	1	Fog	10		Noon	NW.	3	C. K.	5		Noon	W. NW.	4	C. K.	7
	3	NE.	1	Fog	10		3	NW.	3	C. K.	9		3	W.	3	C. K. S.	6
	6	SW.	1	Fog	10		6	NW.	3	C. K.	10		6	W.	3	C. K. S.	4
	9	S.	1	Fog	10		9	NW.	3	C. K.	3		9	W.	2	C. K.	10
Feb. 16	0	NW.	3	C. K.	10	Feb. 17	0	NE.	1	Snow	10	Feb. 18	0	N. NW.	2	C. K.	1
	3	NW.	3	C. K.	9		3	NE.	1	K.	10		3	NW.	1	Clear	0
	6	NW.	2	C. K. S.	2		6	NE.	1	K.	10		6	NW.	1	Clear	0
	9	NW.	1	C.	3		9	NE.	1	Snow	10		9	NE.	1	C. S.	5
	Noon	NW.	1	Clear	0		Noon	N. NE.	1	C. K.	10		Noon	E.	1	C. K.	4
	3	W.	1	C.	2		3	N.	1	C. K.	10		3	SE.	1	C. K.	10
	6	NE.	1	C. K.	10		6	N.	1	K.	10		6	E.	1	C. K.	9
	9	E.	1	C. K.	10		9	N. NW.	1	C. K.	10		9	W.	1	C. K.	9
Feb. 19	0	W.	1	C. K.	10	Feb. 20	0	NW.	2	C. K.	4	Feb, 21	0	S. SW.	1	C. K.	10
	3	W.	1	C. K.	9		3	NW.	1	Clear	0		3	SW.	1	C. K.	10
	6	W.	1	C. K.	10		6	NW.	2	Clear	0		6	W.	1	C. K. S.	9
	9	N. NE.	1	C. K.	9		9	NW.	1	Clear	0		9	NW.	3	C. K.	8
	Noon	N. NE.	1	C. K.	9		Noon	W.	1	C. K.	1		Noon	W. NW.	3	C. S.	4
	3	NE.	1	C. K.	9		3	SW.	1	C. K.	3		3	W. NW.	2	C. S.	3
	6	NE.	1	C. S.	3		6	W. SW.	1	C. K. S.	7		6	W. NW.	1	C. K.	7
	9	NW.	1	C.	3		9	SW.	1	C. K.	10		9	NW.	3	C. K.	9
Feb. 22	0	NW.	1	C. K.	8	Feb. 23	0	NW.	1	Clear	0	Feb. 24	0	S.	1	C. K.	7
	3	W.	1	C. K.	8		3	N.	1	Clear	0		3	S.	1	Clear	0
	6	NW.	1	C. K.	9		6	N.	1	C. K. S.	8		6	S.	1	Clear	0
	9	NW.	3	C. K. S.	6		9	S.	1	C. K.	9		9	S.	1	Haze	
	Noon	NW.	3	C. K.	1		Noon	S. SW.	1	C. K.	8		Noon	S.	1	Haze	
	3	NW.	3	C. K.	1		3	S. SW.	1	C. K.	5		3	S.	1	Haze	
	6	NW.	3	S.	1		6	S. by S.	1	C. S.	1		6	S.	1	Haze	
	9	NW.	2	C. S.	3		9	S. by W.	1	C. K.	10		9	S.	1	C. K.	9
Feb. 25	0	SW.	2	C. K.	10	Feb. 26	0	NW.	3	Clear	0	Feb. 27	0	W. NW.	1	Clear	0
	3	SW.	1	N.	10		3	NW.	3	Clear	0		3	W.	1	Clear	0
	6	W.	1	C. K.	10		6	NW.	3	Clear	0		6	W.	1	Clear	0
	9	S.	1	C. K.	8		9	W.	3	C. K.	6		9	W. NW.	1	C.	1
	Noon	NW.	3	C. K.	3		Noon	W. NW.	3	C. K.	9		Noon	W.	1	C. S.	3
	3	NW.	3	C. K.	4		3	NW.	3	C. K.	9		3	W. NW.	2	C.	2
	6	W. NW.	5	C. K.	7		6	NW.	1	C. K.	7		6	NW.	1	C. K.	2
	9	NW.	4	Clear	0		9	W. NW.	1	C.	1		9	NW.	2	Clear	0

REMARKS.

February 15. Snowing lightly at intervals during the day.
16. Light snow at $10^h\ 40^m$ p. m.
20. Lunar halo at 7^h p. m.
23. Lunar halo at 8^h p. m.
25. Rain at $0^h\ 50^m$ a. m.; amount, 0.384 inch.
26. Bright zodiacal light visible from 7^h to 8^h p. m. The apex extended nearly to the Pleiades.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. Feb. 28	0	NW.	1	Clear	0	1872. Feb. 29	0	NW.	1	C. K.	8	1872.					
	3	NW.	1	Clear	0		3	NW.	1	K.	10						
	6	NW.	2	Clear	0		6	NE.	1	K.	10						
	9	NW.	2	Clear	0		9	E.	1	Snow	10						
	Noon	N. NW.	2	C.	1		Noon	NE.	1	Snow	10						
	3	N. NW.	2	Haze			3	N.	1	Snow	10						
	6	NW.	1	C. K.	6		6	N.	1	Snow	10						
	9	SE.	1	C. K.	8		9	N.	2	Haze							
Mar. 1	9	NW.	1	C. K. S.	5	Mar. 2	0	NW.	1	K.	10	Mar. 3	0	NW.	2	C. K.	9
	3	NW.	1	Clear	0		3	NW.	2	K.	10		3	NW.	2	C. K.	3
	6	NW.	1	Clear	0		6	NE.	3	Snow	10		6	NW.	2	C. K.	2
	9	NW.	1	Clear	0		9	N.	4	Snow	10		9	N. NW.	3	Clear	0
	Noon	NW.	1	Clear	0		Noon	N.	4	Snow	10		Noon	N. NW.	2	S.	1
	3	NW.	1	Clear	0		3	N.	3	Snow	10		3	NW.	1	C.	1
	6	NW.	1	C. K.	6		6	NW.	2	K.	10		6	W.	1	C. K.	8
	9	NW.	1	K.	10		9	NW.	1	C. K.	9		9	W.	1	C. K.	4
Mar. 4	0	NE.	1	C. K.	9	Mar. 5	0	NW.	5	Clear	0	Mar. 6	0	NW.	1	Clear	0
	3	S.	1	C. K.	8		3	NW.	4	Clear	0		3	NW.	1	Clear	0
	6	S.	1	K.	10		6	NW.	3	C. K.	2		6	W. NW.	1	C. K.	2
	9	S. SW.	1	C. K.	8		9	NW.	2	C.	1		9	NW.	2	C.	1
	Noon	S. SE.	1	C. S.	4		Noon	W.	5	Clear	0		Noon	W.	5	Clear	0
	3	NW.	1	C. K.	8		3	W. NW.	3	Clear	0		3	W.	5	Clear	0
	6	NW.	4	C. K.	9		6	NW.	2	Clear	0		6	W.	4	C. K.	2
	9	NW.	6	Clear	0		9	NW.	1	Clear	0		9	NW.	3	Clear	0
Mar. 7	0	NW.	3	Clear	0	Mar. 8	0	NW.	2	K.	10	Mar. 9	0	E.	1	N.	10
	3	NW.	3	Clear	0		3	NW.	2	K.	10		3	SE.	1	N.	10
	6	NW.	2	Clear	0		6	NW.	2	K.	10		6	E.	1	K.	10
	9	NW.	3	Clear	0		9	NW.	1	K.	10		9	NE.	1	N.	10
	Noon	W. NW.	3	C. S.	3		Noon	SW.	1	K.	10		Noon	NE.	1	N.	10
	3	W.	2	C. K.	4		3	SE.	1	K.	10		3	NE.	1	N.	10
	6	W.	1	C. K.	10		6	S.	1	K.	10		6	NW.	1	Mist	10
	9	NW.	1	C. K.	6		9	S.	1	Sleet	10		9	E.	1	Haze	
Mar. 10	0	E.	1	N.	10	Mar. 11	0	NW.	1	Clear	0	Mar. 12	0	N.	1	K.	10
	3	SE.	1	N.	10		3	NW.	1	Clear	0		3	NW.	1	K.	10
	6	NW.	2	N.	10		6	N.	1	C. K.	6		6	N.	2	Snow	10
	9	NW.	2	N.	10		9	NE.	1	C. K.	6		9	NW.	3	Snow	10
	Noon	NW.	2	N.	10		Noon	SE.	1	C. K.	10		Noon	NW.	3	C. K.	4
	3	NW.	2	N.	10		3	NE.	1	Snow	10		3	NW.	3	C. K.	8
	6	W.	1	C. K.	10		6	N. NE.	1	Snow	10		6	NW.	3	C. K.	3
	9	NW.	1	Clear	0		9	NE.	1	K.	10		9	NW.	2	C. K.	2

REMARKS.

February 29. Snow from 8^h a. m. to 6^h p. m.; depth, 2.5 inches.
March 2. Snow from $3^h\ 15^m$ a. m. to 5^h p. m.; depth, 6.5 inches; melted snow, 0.330 inch.
4. Snowing lightly at $6^\circ\ 25^m$ a. m. and $5^h\ 25^m$ p. m.
8. Light snow at $0^h\ 35^m$ p. m. and sleet at $7^h\ 25^m$ p. m.
10. Rain during the day; amount, 1.070 inches.
11. Snow from 3^h to 8^h p. m.; depth, 1.25 inches.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force.					Direction.	Force.					Direction.	Force.		
1872.						1872.						1872.					
Mar. 13.	0	NW.	1	Clear	0	Mar. 14	0	SE.	1	K.	10	Mar. 15	0	SE.	1	K.	10
	3	NW.	2	Clear	0		3	SE.	1	K.	10		3	NW.	5	C. K.	5
	6	W.	1	C. K.	6		6	W. NW.	1	K.	10		6	NW.	4	C. K.	5
	9	S. SW.	1	C. S.	3		9	NE.	1	Fog	10		9	NW.	3	C. K.	3
	Noon	SE.	1	C. K.	9		Noon	SW.	1	K.	10		Noon	NW.	3	C. K.	1
	3	S.	2	C. K. S.	6		3	NE.	1	K.	10		3	NW.	3	C. K.	1
	6	S.	1	C. K.	9		6	NE.	1	N.	10		6	NW.	3	Clear	0
	9	SE.	1	K.	10		9	E.	1	N.	10		9	NW.	2	Clear	0
Mar. 16	0	NW.	3	K.	10	Mar. 17	0	SE.	1	K.	10	Mar. 18	0	NW.	1	C. K.	3
	3	NW.	3	C. K.	6		3	S. SE.	1	K.	10		3	NW.	1	Clear	0
	6	N.	2	C. K.	8		6	S. by W.	1	Snow	10		6	NW.	1	Clear	0
	9	W.	1	C. S.	3		9	S. by W.	1	Snow	10		9	W.	3	C. K.	3
	Noon	Calm	0	Clear	0		Noon	SW.	1	Snow	10		Noon	W. SW.	3	C. K.	4
	3	Calm	0	Clear	0		3	SW.	1	K.	10		3	SW.	2	C. K.	3
	6	SE.	1	C. K. S.	2		6	S. SW.	1	C. K. S.	10		6	S.	1	C. K. S.	2
	9	SE.	1	C. K.	7		9	W.	1	C. K.	10		9	S.	1	Clear	0
Mar. 19	0	S. SW.	2	Clear	0	Mar. 20	0	NW.	2	Clear	0	Mar. 21	0	NW.	2	Clear	0
	3	SW.	2	Clear	0		3	NW.	1	Clear	0		3	W.	2	C. K.	1
	6	S. SW.	2	C. K. S.	2		6	NW.	2	Clear	0		6	W.	3	C. K. S.	2
	9	SW.	3	Haze			9	NW.	5	C. K.	4		9	NW.	5	C.	2
	Noon	W.	4	C.	2		Noon	NW.	6	C. K.	6		Noon	W.	6	C.	2
	3	NW.	5	C. K.	5		3	NW.	6	C. K.	4		3	W.	5	C.	2
	6	NW.	3	C. K. S.	3		6	W.	5	C. K.	2		6	W.	4	C. K.	2
	9	NW.	4	C. K.	2		9	W. NW.	4	Clear	0		9	W. NW.	3	Clear	0
Mar. 22	0	W.	3	Clear	0	Mar. 23	0	SW.	1	Snow	10	Mar. 24	0	NW.	2	C. K.	1
	3	SW.	1	Clear	0		3	S.	1	Snow	10		3	NW.	2	C. K.	2
	6	W. NW.	1	C. K.	6		6	S.	1	K.	10		6	N. by E.	1	C. K. S.	2
	9	W.	3	C. K.	6		9	E.	1	K.	10		9	NW.	2	C.	1
	Noon	SW.	2	C. K.	4		Noon	SW.	1	C. K.	10		Noon	W.	3	Clear	0
	3	SE.	1	C. K.	10		3	W. NW.	2	K.	10		3	NW.	3	Clear	0
	6	S.	2	K.	10		6	NW.	2	C. K.	3		6	N. NW.	1	Clear	0
	9	S. SW.	3	K.	10		9	NW.	4	C. K.	4		9	W.	1	Clear	0
Mar. 25	0	NW.	1	Clear	0	Mar. 26	0	NE.	2	N.	10	Mar. 27	0	NW.	1	C. K.	10
	3	N. NW.	1	Clear	0		3	NE.	3	N.	10		3	NW.	2	C. K.	10
	6	N. NE.	1	Fog			6	N.	3	N.	10		6	NW.	1	C. K.	9
	9	E.	1	Haze			9	N. NW.	3	N.	10		9	N.	3	C.	1
	Noon	S. SE.	2	K.	9		Noon	N. NW.	2	N.	10		Noon	NW.	3	Clear	0
	3	SE.	3	K.	10		3	NW.	2	Mist	10		3	NW.	2	Clear	0
	6	SE.	1	N.	10		6	NW.	2	C. K.	10		6	NW.	1	Clear	0
	9	NE.	1	N.	10		9	NW.	2	C. K.	10		9	W. NW.	2	Clear	0

REMARKS.

March 14. Rain at 5^h 50^m p. m.; amount, 0.328 inch.
15. Lunar halo at 9^h p. m.
16. Lunar halo at 9^h p. m.
17. Snow during the morning; depth, 2.5 inches.
23. Snow at 3^h a. m.; depth, 0.25 inch.
25. Rain from 4^h 15^m p. m. to 3^h p. m. on the 26th; amount, 0.998 inch.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. Mar. 28	0	NW.	1	Clear	0	1872. Mar. 29	0	S. SE.	1	K.	10	1872. Mar. 30	0	W.	1	C. K.	6
	3	NW.	1	Clear	0		3	S.	1	C. K.	10		3	NE.	1	C. K.	4
	6	W. NW.	1	Clear	0		6	S. by W.	1	C. K.	10		6	NE.	1	C. K. S.	4
	9	NW.	1	Clear	0		9	SW.	1	K.	10		9	E. NE.	2	Haze	0
	Noon	W.	1	C. K.	2		Noon	W.	2	C. K.	8		Noon	E.	2	C. K.	10
	3	SE.	1	C. K.	7		3	W.	1	C. K.	2		3	E.	2	K.	10
	6	S.	1	C. K.	7		6	W. NW.	1	C. K. S.	2		6	NE.	1	C. K.	10
	9	S. SE.	1	Haze			9	W.	1	C.	2		9	E. NE.	3	K.	10
Mar. 31	0	NE.	2	K.	10												
	3	NE.	2	N.	10												
	6	NE.	1	N.	10												
	9	W. NW.	1	Fog													
	Noon	S.	1	Haze													
	3	W.	1	C. K.	2												
	6	S. SW.	2	C. K. S.	7												
	9	NW.	4	C. K.	2												
Apr. 1	0	NW.	4	C. K.	1	Apr. 2	0	NW.	1	Clear	0	Apr. 3	0	S. SE.	1	C. K.	2
	3	NW.	4	C. K.	5		3	NW.	1	Clear	0		3	SW.	1	Clear	0
	6	NW.	3	C. K. S.	2		6	W.	1	Clear	0		6	SW.	1	C. K. S.	9
	9	W.	5	C. K.	8		9	W.	2	Clear	0		9	S. SW.	1	C. K.	10
	Noon	W.	4	C. K.	7		Noon	W.	2	Clear	0		Noon	S.	1	C. K.	9
	3	W. NW.	4	C. K.	6		3	W.	2	Clear	0		3	SW.	1	C. K.	10
	6	NW.	3	C. K.	2		6	SW.	1	C. K.	5		6	N. NW.	2	C. K. S.	10
	9	NW.	3	Clear	0		9	W.	1	Clear	0		9	N. NW.	3	K. S.	10
Apr. 4	0	N.	2	C. K. S.	2	Apr. 5	0	NW.	1	Clear	0	Apr. 6	0	W.	1	Clear	0
	3	NW.	2	C. S.	2		3	NW.	1	Clear	0		3	S.	1	C. K.	3
	6	NW.	1	C. K.	10		6	W.	1	Clear	0		6	S.	1	Haze	
	9	N.	2	Clear	0		9	NW.	2	Clear	0		9	S.	1	Haze	
	Noon	NW.	2	C.	1		Noon	NW.	2	S.	1		Noon	S.	2	Haze	
	3	NW.	2	C. K.	3		3	W. NW.	1	S.	1		3	S. SW.	2	Haze	
	6	N. by W.	1	C.	2		6	W.	1	C. K.	4		6	S.	2	K.	10
	9	NW.	1	S.	2		9	NW.	1	C. K.	2		9	S.	2	K.	10
Apr. 7	0	S.	1	N.	10	Apr. 8	0	SE.	1	C. K.	10	Apr. 9	0	E.	2	K.	10
	3	S.	1	N.	10		3	SE.	1	K.	10		3	E.	1	Fog	
	6	S.	1	N.	10		6	N. NE.	1	Mist	10		6	E. NE.	1	N.	10
	9	W.	1	N.	10		9	NE.	1	Fog	10		9	NE.	1	N.	10
	Noon	W.	1	Haze			Noon	W.	1	C. K.	10		Noon	S.	2	C. K.	9
	3	S.	1	K.	10		3	E.	1	C. K.	10		3	S. SE.	1	C. K.	10
	6	S. by W.	1	C. K. S.	9		6	E.	1	K.	10		6	SW.	3	N.	10
	9	S.	1	S.	1		9	NE.	2	N.	10		9	W.	2	N.	10

REMARKS.

March 31. Rain at 3^h a. m.; amount, 0.126 inch.
Lightning in the east at 7^h 30 p. m.

April 4. The aurora borealis visible from midnight till morning; no streamers visible.

6. Rain from 9^h 20^m p. m. to 10^h a. m. on the 7th; amount, 0.528 inch.

9. Rain at intervals during the day; amount, 0.660 inch.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force.					Direction.	Force.					Direction.	Force.		
1872. Apr. 10	0	SW.	1	N.	10	1872. Apr. 11	0	W. SW.	2	S.	1	1872. Apr. 12	0	SW.	1	C. K.	2
	3	SW.	1	N.	8		3	W. SW.	1	Clear	0		3	W.	1	C. K.	2
	6	NW.	4	C. K.	8		6	NW.	1	C.	2		6	W.	1	C. K.	7
	9	W.	5	C. K.	2		9	NW.	2	C.	3		9	S.	1	C. K.	3
	Noon	W.	5	Clear	0		Noon	NW.	2	C.	2		Noon	S.	2	Haze	
	3	W.	5	C. K.	1		3	NW.	1	Clear	0		3	S. SW.	3	N.	10
	6	W.	4	Clear	0		6	W.	1	C. K.	1		6	SW.	2	C. K.	10
	9	W.	3	Clear	0		9	W.	1	Clear	0		9	SW.	2	C. K.	8
Apr. 13	0	S.	2	K.	10	Apr. 14	0	NW.	2	Clear	0	Apr. 15	0	SW.	1	C. K.	3
	3	SW.	2	N.	10		3	NW.	2	Clear	0		3	NE.	1	C. K.	8
	6	SW.	1	N.	10		6	W.	3	C. K. S.	7		6	E.	1	C. K.	10
	9	NW.	2	C. K.	9		9	W. NW.	4	C. S.	3		9	S.	1	N.	10
	Noon	W.	3	C. K.	7		Noon	W.	4	C.	2		Noon	SE.	1	N.	10
	3	SW.	3	C. K.	6		3	W.	4	C.	1		3	SE.	2	K.	10
	6	W.	3	Clear	0		6	NW.	2	C. K.	3		6	NE.	1	Mist	10
	9	W.	2	Clear	0		9	NW.	1	Clear	0		9	SE.	1	N.	10
Apr. 16	0	NW.	3	N.	10	Apr. 17	0	NW.	1	Clear	0	Apr. 18	0	E.	1	C. K.	10
	3	NW.	3	N.	10		3	N.	1	Clear	0		3	E.	1	N.	10
	6	N. NW.	3	C. K.	10		6	NW.	1	Clear	0		6	NE.	1	K.	10
	9	NW.	3	C. K.	4		9	S. by W.	1	C. K.	3		9	NE.	1	C. K.	10
	Noon	NW.	4	C. K.	4		Noon	S.	1	C. K.	7		Noon	E.	1	K.	10
	3	N. by W.	3	C. K.	1		3	S.	2	C. K.	9		3	E.	1	K.	10
	6	NW.	3	Clear	0		6	S.	1	C. K.	4		6	SE.	1	K.	10
	9	NW.	1	Clear	0		9	SE.	1	C. K.	6		9	NE.	1	K.	10
Apr. 19	0	N. NW.	1	N.	10	Apr. 20	0	W.	1	C.	1	Apr. 21	0	E.	1	C. K.	8
	3	NW.	1	N.	10		3	W.	1	C.	2		3	E.	1	Clear	0
	6	NW.	1	C. K. S.	7		6	W.	1	C.	3		6	NW.	1	Fog	
	9	NW.	3	C. K.	8		9	SE.	1	Haze			9	SE.	1	Haze	
	Noon	NW.	3	C. K.	6		Noon	S.	1	C. K.	10		Noon	S.	1	C. K.	4
	3	NW.	1	C. K.	5		3	S.	1	C. K.	9		3	SW.	2	C. K.	8
	6	NW.	1	C.	1		6	E.	1	C. K.	9		6	S.	1	C. K.	9
	9	NW.	1	Clear	0		9	SE.	1	C.	4		9	S. by E.	1	C. K.	4
Apr. 22	0	S.	2	C. K.	6	Apr. 23	0	N.	2	Clear	0	Apr. 24	0	S.	1	C.	2
	3	SW.	1	C. K. S.	8		3	NW.	2	Clear	0		3	S.	1	C.	3
	6	NW.	1	C. K. S.	9		6	NW.	2	Clear	0		6	S.	1	C.	1
	9	NW.	4	C. K.	3		9	W.	1	Clear	0		9	S.	1	C. K.	3
	Noon	NW.	3	C. S.	2		Noon	W.	1	Clear	0		Noon	S.	1	C. K.	8
	3	NW.	3	C.	1		3	S. SE.	2	Clear	0		3	SW.	1	C. K.	7
	6	NW.	3	C. K.	2		6	S.	2	C.	3		6	S.	1	C. K.	2
	9	NW.	2	C. K.	1		9	S.	2	Clear	0		9	W.	1	Clear	0

REMARKS.

April 10. A faint aurora visible during the evening till 11^h p. m. It was a faint diffused glow, with no arch or streamers.
13. Rain at 3^h a. m.; amount, 0.224 inch.
15. Rain at 7^h 50^m a. m., and continued through the day; amount, 0.290 inch.
17. Lunar halo at 9 p. m.
18. Rain at intervals during the afternoon; amount, 0.230 inch.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. Apr. 25	0	S. by W.	1	Clear	0	1872. Apr. 26	0	SW.	1	Haze		1872. Apr. 27	0	W.	1	Haze	
	3	S.	1	Clear	0		3	S.	1	C. K.	4		3	NW.	1	Haze	
	6	S.	1	C.	4		6	SW.	1	C. K.	8		6	N.	1	Haze	
	9	S.	1	C.	6		9	S. by E.	1	C. K.	8		9	NW.	1	Haze	
	Noon	SE.	1	C.	3		Noon	SW.	2	Haze			Noon	W.	1	Haze	
	3	SE.	2	C. K.	4		3	SW.	2	Haze			3	W.	1	Haze	
	6	S.	1	C. K.	4		6	W.	1	Haze			6	N. NW.	1	C. K.	7
	9	S.	1	C. K.	3		9	W.	2	C. K.	6		9	N. NE.	1	C. K.	8
Apr. 28	0	N. NE.	1	K.	10	Apr. 29	0	W.	1	C. K.	3	Apr. 30	0	SE.	2	Clear	0
	3	NE.	2	K.	10		3	W.	1	C. K.	3		3	W.	1	Clear	0
	6	NE.	2	C. K.	10		6	NW.	1	Haze			6	W.	1	C. S.	4
	9	NE.	2	C. K.	10		9	N. NE.	1	Haze			9	SE.	2	Haze	
	Noon	N.	1	K.	10		Noon	SW.	1	Haze			Noon	S.	2	C. K.	4
	3	S.	1	C. K.	10		3	S. by W.	1	Haze			3	S.	3	C. K.	5
	6	S. SW.	1	C. K.	9		6	SE.	1	C.	2		6	SE.	2	C. K.	3
	9	SW.	1	C. K.	2		9	SE.	1	Clear	0		9	SW.	1	S.	1
May 1	0	SE.	1	Clear	0	May 2	0	SE.	1	C. K.	10	May 3	0	NW.	2	C. K.	4
	3	SE.	1	C. K.	6		3	W.	1	C. K.	9		3	NW.	3	C. K.	10
	6	S. SE.	1	C. K.	10		6	W.	1	C. K.	9		6	NW.	3	C. K.	4
	9	S.	3	C. K.	4		9	NW.	2	C. K.	8		9	NW.	3	C. K.	3
	Noon	S.	4	C. K.	6		Noon	S. by E.	1	C. K.	2		Noon	SW.	2	C. K.	2
	3	S.	3	C. K.	10		3	S. by W.	1	C. K.	7		3	W. SW.	2	C. K.	2
	6	S. SE.	3	C. K.	9		6	SW.	2	C. K.	8		6	SW.	2	C. K.	7
	9	SE.	1	K.	10		9	NW.	4	Clear	0		9	S. SE.	1	K.	10
May 4	0	NW.	2	C. K.	10	May 5	0	NW.	2	Clear	0	May 6	0	W.	1	C. K.	6
	3	NW.	2	C. K.	2		3	NW.	2	Clear	0		3	NW.	1	C. K.	9
	6	NW.	2	Clear	0		6	NW.	2	C. K.	2		6	SW.	2	C. K.	4
	9	W. NW.	3	C.	2		9	NW.	3	Clear	0		9	SE.	1	C. K.	7
	Noon	W. NW.	4	C. K.	6		Noon	W. NW.	3	Clear	0		Noon	NW.	4	C. K.	8
	3	W. NW.	5	C. K.	4		3	W. NW.	2	Clear	0		3	W. NW.	5	C. K.	3
	6	NW.	3	C. K.	3		6	W. NW.	1	Clear	0		6	W. NW.	4	C. K.	4
	9	NW.	2	Clear	0		9	W.	1	Clear	0		9	NW.	3	C. K.	3
May 7	0	NW.	1	C.	2	May 8	0	NW.	2	C. K.	3	May 9	0	S.	1	Haze	
	3	NW.	1	Clear	0		3	W. NW.	2	C. K.	5		3	W.	1	C.	4
	6	NW.	1	Clear	0		6	W. NW.	1	C. K.	8		6	W.	1	C. K.	6
	9	S.	1	C.	2		9	NW.	2	Haze			9	SW.	1	Haze	
	Noon	S.	1	Haze			Noon	W. NW.	2	Haze			Noon	S.	1	Haze	
	3	NW.	2	C. K.	3		3	W. NW.	1	Haze			3	SW.	1	Haze	
	6	W.	1	C. K.	7		6	NW.	1	C. K.	4		6	W.	1	Haze	
	9	W.	3	C. K.	4		9	S.	1	C.	2		9	W.	2	Haze	

REMARKS.

April 27. Lightning and thunder at $8^h\ 30^m$ and rain at $9^h\ 30^m$ p. m.; amount, 0.096 inch.
May 2. Several showers during the morning; amount, 0.290 inch.
3. Light showers after $7^h\ 30^m$ p. m.; amount, 0.050 inch.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. May 10	0	NW.	1	Haze	
	3	NW.	1	Haze	
	6	W.	1	C. K.	10
	9	SE.	1	C. K.	6
	Noon	S.	1	C.	4
	3	S. by W.	2	C.	4
	6	S.	1	Haze	
	9	S.	1	C. K.	2
May 13	0	NW.	1	K.	10
	3	NW.	2	C. K. S.	4
	6	NW.	3	C. K.	5
	9	NW.	3	Clear	0
	Noon	NW.	3	Clear	0
	3	W.	3	C. K.	3
	6	N.	2	C. K.	8
	9	NW.	1	C. K.	4
May 16	0	SE.	1	K.	10
	3	SE.	1	K.	10
	6	N.	2	C. K.	10
	9	N. NE.	2	C. K.	8
	Noon	NE.	1	Haze	
	3	SW.	1	Haze	
	6	NW.	1	Haze	
	9	N.	1	Haze	
May 19	0	SE.	3	N.	10
	3	SE.	3	N.	10
	6	SE.	1	K.	10
	9	SW.	1	C. K.	10
	Noon	W. NW.	3	C. K.	3
	6	W. SW.	3	C. K.	3
	3	W.	2	C. K.	3
	9	W.	1	C. K.	8
May 22	0	NW.	1	Clear.	0
	3	NW.	2	Haze	
	6	NW.	1	C. K.	6
	9	S. by W.	1	Haze	
	Noon	S. SE.	2	C. K.	10
	3	SE.	3	C. K.	10
	6	SE.	1	N.	10
	9	S.	2	C. K.	10
1872. May 11	0	S.	1	C. K.	3
	3	S.	1	C K.	4
	6	SW.	1	Haze	
	9	S. SE.	2	Haze	
	Noon	SW.	3	C. K.	3
	3	S. SW.	3	C. K.	10
	6	S.	1	C. K.	8
	9	S.	4	C. K.	4
May 14	0	NW.	1	Clear	0
	3	NW.	1	Clear	0
	6	NW.	1	Clear	0
	9	N. by E.	1	Haze	
	Noon	NW.	1	Haze	
	3	NW.	2	Haze	
	6	NW.	1	C. K.	4
	9	SW.	1	Haze	
May 17	0	N. NE.	2	Haze	
	3	N.	1	Haze	
	6	NW.	1	Haze	
	9	NE.	1	Haze	
	Noon	SW.	1	Haze	
	3	SW.	1	Haze	
	6	S. SE.	1	Haze	
	9	S. SE.	2	C. K.	10
May 20	0	W.	2	C. K.	3
	3	W.	3	C. K.	5
	6	W.	3	C. K.	3
	9	SW.	3	C.	3
	Noon	W.	4	C. K.	6
	3	W.	3	C. K.	5
	6	SW.	1	C. K.	6
	9	N. by W.	3	C. K. S.	7
May 23	0	S.	2	C. K.	10
	3	S.	1	C. K.	10
	6	S.	2	C. K.	7
	9	W. SW.	2	C. K.	8
	Noon	NW.	4	C.	3
	3	NW.	3	C.	2
	6	NW.	3	C. K.	6
	9	N. NW.	2	C. K.	2
1872. May 12	0	SW	2	C. K.	6
	3	SW.	1	C. K.	4
	6	SW.	1	C. K.	8
	9	W.	1	C. K.	9
	Noon	N.	1	Haze	
	3	W. NW.	3	Haze	
	6	W. NW.	1	C. K.	6
	9	N.	1	C. K.	2
May 15	0	NW.	1	Haze	
	3	NW.	1	Haze	
	6	SW.	1	C. K.	8
	9	SW.	2	C. K.	8
	Noon	S.	3	Haze	
	3	S.	2	Haze	
	6	S. SW.	1	C. K.	7
	9	S. by E.	1	C. K.	10
May 18	0	SE.	2	.	10
	3	SE.	2	Haze	
	6	SE.	2	C. K.	10
	9	SE.	2	K.	10
	Noon	E.	3	K.	10
	3	E.	3	N.	10
	6	SE.	2	N.	10
	9	SE.	2	N.	10
May 21	0	NW.	3	C .K.	7
	3	NW.	2	Clear	0
	6	W.	2	Clear	0
	9	W.	3	C. K.	3
	Noon	W.	3	C. K.	4
	3	W. NW.	3	C. K.	3
	6	NW.	1	C.	2
	9	NW.	1	Clear	0
May 24	0	NW.	2	Clear	0
	3	NW.	1	Clear	0
	6	NW.	1	C. K.	8
	9	S.	1	Haze	
	Noon	SE.	2	C. K.	9
	3	S.	2	C. K.	9
	6	S.	1	C. K.	6
	9	S.	1	K.	10

REMARKS.

May 18. Rain from 3^h p. m. to 3^h a. m. on the 19th; amount, 0.140 inch.
20. Lightning in the southeast during the evening.
22. Heavy shower at 5^h p. m.; amount, 0.420 inch.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. May 25	0	SW.	1	N.	10	1872. May 26	0	W.	2	K	10	1872. May 27	0	S.	1	Clear	0
	3	W.	1	K.	10		3	NW.	2	C. K.	8		3	SW.	1	Clear	0
	6	W.	2	K.	10		6	N.	1	C. K.	9		6	SW.	1	Clear	0
	9	W. NW.	2	C. K.	7		9	NE.	1	C. K.	6		9	S.	2	C. K.	3
	Noon	NW.	3	C. K.	10		Noon	NE.	1	C. K.	8		Noon	S. SW.	3	C. K.	8
	3	W. by N.	1	C. K.	10		3	NE.	1	C.	2		3	W.	3	N.	10
	6	W.	1	K.	10		6	S.	1	Clear	0		6	W. NW.	3	N.	10
	9	W.	1	K.	10		9	S.	1	Clear	0		9	W.	1	C.	2
May 28	0	NW.	1	C. K.	8	May 29	0	W. NW.	1	C. K.	2	May 30	0	SE.	2	C.	1
	3	NW.	2	Clear	0		3	N.	2	C.	2		3	SE.	1	C. K.	6
	6	W.	2	C.	1		6	W. NW.	2	C. K.	3		6	NE.	1	C. K.	9
	9	W. NW.	2	Clear	0		9	SW.	1	Clear	0		9	SW.	2	C. K.	9
	Noon	W.	3	C. K.	7		Noon	SE.	2	C. K.	2		Noon	N.	4	C. K.	9
	3	NW.	3	C. K.	8		3	S.	2	C. K.	7		3	N.	2	C. K.	9
	6	W. by S.	1	C. K.	2		6	S.	1	C. K.	4		6	S.	1	Clear	0
	9	W. NW.	1	C. K.	8		9	SE.	1	C. S.	2		9	N.	2	C. K.	2
May 31	0	NW.	2	C.	2												
	3	NW.	2	Clear	0												
	6	NW.	2	Clear	0												
	9	NW.	3	Clear	0												
	Noon	NW.	3	C. K.	4												
	3	NW.	3	C. K.	4												
	6	NW.	3	C. K.	3												
	9	NW.	2	Clear	0												
June 1	0	NW.	2	C. K.	2	June 2	0	SE.	1	N.	10	June 3	0	N.	1	Clear	0
	3	NW.	3	C. K.	2		3	NE.	2	K.	10		3	NE.	1	Haze	
	6	NW.	3	Clear	0		6	N. NE.	2	C. K.	3		6	NE.	1	K.	10
	9	NW.	2	C. K.	4		9	N. NE.	2	C. K.	4		9	S.	2	C. K.	8
	Noon	NW.	1	C. K.	7		Noon	NE.	1	C. K.	4		Noon	SE.	2	C. K.	8
	3	SE.	1	C. K.	8		3	E.	1	C. K.	9		3	SW.	2	C. K.	8
	6	S.	2	C. K.	8		6	E.	1	C. K.	3		6	SW.	2	C. K.	9
	9	SE.	1	K.	10		9	SE.	1	Clear	0		9	SW.	1	C. K.	9
June 4	0	SW.	1	C. K.	9	June 5	0	NW.	3	C. K.	4	June 6	0	N.	2	C. K.	9
	3	SW.	2	C. K.	10		3	NW.	2	Clear	0		3	NW.	2	Clear	0
	6	S.	1	N.	10		6	NW.	3	C.	3		6	NW.	2	Clear	0
	9	SW.	2	N.	10		9	NW.	5	C. K.	8		9	NW.	3	Clear	0
	Noon	SW.	1	N.	10		Noon	NW.	5	C. K.	9		Noon	W. NW.	2	C.	6
	3	SW.	1	K.	10		3	NW.	4	C. K.	7		3	NW.	2	C. K.	7
	6	W. NW.	4	C. K.	2		6	NW.	3	C. K.	10		6	NW.	1	C. K.	7
	9	NW.	4	S.	1		9	N.	2	C. K.	8		9	NW,	1	C. K.	4

REMARKS.

May 27. Heavy shower at $2^h\ 40^m$ p. m.; also at $10^h\ 40^m$ p. m.; amount, 0.674 inch.
30. Very light showers in the afternoon.
June 1. Rain in the evening; amount, 0.410 inch.
4. Rain during the day; amount, 0.374 inch.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force.		
1872. June 7	0	S.	1	C. K.	8
	3	SW.	1	C. K.	10
	6	SW.	1	C. K.	10
	9	S.	1	C. K.	10
	Noon	SW.	3	C. K.	10
	3	SW.	1	K.	10
	6	SE.	1	C. K.	9
	9	SE.	1	C. K. S.	4
1872. June 8	0	W.	2	C. K.	4
	3	NW.	1	C. K. S.	4
	6	SW.	1	C.	2
	9	SW.	3	C. K.	9
	Noon	W.	3	C. K.	7
	3	W.	4	C. K.	9
	6	W.	2	C. K.	9
	9	W. NW.	2	C. S.	2
1872. June 9	0	NW.	1	Clear	0
	3	NW.	1	.	1
	6	W. NW.	1	Clear	0
	9	SE.	1	Clear	0
	Noon	S.	2	C. K.	6
	3	S.	3	C. K.	5
	6	S.	3	C. K.	8
	9	S.	1	C. K. S.	9
June 10	0	S.	1	C. K.	8
	3	S. by W.	1	C. K. S.	6
	6	SW.	1	C. K.	7
	9	W. SW.	2	C. K.	8
	Noon	W.	2	N.	10
	3	NW.	2	C. K.	10
	6	W. by N.	1	C. K.	8
	9	W. SW.	1	C. K.	3
June 11	0	W.	2	Clear	0
	3	NW.	2	C. K. S.	3
	6	W. NW.	2	Clear	0
	9	W.	3	Clear	0
	Noon	NW.	3	C.	1
	3	W.	2	C.	1
	6	W.	1	Clear	0
	9	W.	1	Clear	0
June 12	0	NW.	1	Clear	0
	3	NW.	1	Clear	0
	6	W.	1	Clear	0
	9	W.	1	Clear	0
	Noon	S. by W.	2	Clear	0
	3	SW.	1	Clear	0
	6	SW.	2	Clear	0
	9	W.	1	C.	1
June 13	0	SW.	1	Clear	0
	3	SW.	1	C. S.	4
	6	NW.	1	C.	2
	9	E. SE.	1	Haze	
	Noon	SE.	2	Haze	
	3	SE.	2	C.	4
	6	S.	2	C. K.	4
	9	SE.	1	C.	2
June 14	0	W.	2	C. S.	3
	3	SW.	1	C. K.	4
	6	SW.	1	C.	1
	9	SW.	1	C. K.	1
	Noon	SW.	2	C. K.	7
	3	NW.	2	C. K.	9
	6	N. NW.	1	C. K.	10
	9	NW.	1	N.	10
June 15	0	NW.	1	C. K.	6
	3	NW.	1	C.	2
	6	NW.	1	C. S.	7
	9	NW.	2	C. K.	9
	Noon	S. SW.	1	C. K.	10
	3	S.	1	C. K.	9
	6	S.	1	C. K.	9
	9	SW.	1	C. K,	10
June 16	0	SW.	1	C. K.	10
	3	W.	1	C. K.	10
	0	W. SW.	1	C. K.	10
	9	S.	2	C. K.	9
	Noon	S.	1	C. K.	9
	3	SW.	1	C. K.	8
	6	SW.	2	K.	10
	9	N.	1	C. K.	6
June 17	0	N.	1	C.	2
	3	N.	1	Clear	0
	6	NW.	1	K.	10
	9	W. SW.	1	C. K.	9
	Noon	S.	1	C. K.	9
	3	S.	1	C. K.	9
	6	S.	1	C. S.	6
	9	SW.	1	C. S.	4
June 18	0	SW.	1	Clear	0
	3	W.	1	Clear	0
	6	W.	1	Fog	
	9	S. SW.	1	Clear	0
	Noon	W. SW.	1	C. K.	3
	3	SE.	2	C. K.	3
	6	SE.	1	C.	2
	9	S. SE.	1	C.	1
June 19	0	SW.	1	C.	2
	3	W.	1	C. S.	6
	6	NW.	1	C. K.	8
	9	NW.	1	C. K.	9
	Noon	S.	1	C. K.	9
	3	S. by E.	1	C. K.	9
	6	S. by E.	1	C.	4
	9	SW.	1	C. K.	6
June 20	0	SW.	1	C.	2
	3	W.	1	Clear	0
	6	W.	1	C. K.	8
	9	SW.	1	C. K.	9
	Noon	S. SE.	1	C. K. S.	7
	3	S.	2	C. K.	4
	6	S.	1	C. K.	9
	9	SW.	1	C. K.	8
June 21	0	S.	1	C. K.	8
	3	SW.	1	C. K.	4
	6	SW.	1	C. K.	3
	9	S.	1	C. K.	4
	Noon	S.	2	C. K.	6
	3	S.	2	C. K.	4
	6	S.	2	C. K.	3
	9	SW.	1	C. K.	6

REMARKS.

June 7. Light showers at $1^h\ 45^m$ p. m. Lightning in the northwest at 8^h p. m.
8. Light shower at 2^h p. m.; amount, 0.150 inch.
9. Light shower at $11^h\ 40^m$ p. m.; amount, 0.010 inch.
10. The aurora borealis was visible from $1^h\ 30^m$ a. m. till daylight. Rain at noon; amount, 0.346 inch.
14. Rain, with distant thunder, at $2^h\ 10^m$ p. m.; amount of rain, 0.178 inch.
16. Heavy shower, with much lightning and thunder, from $6^h\ 5^m$ to 8^h p. m.; amount of rain, 1.160 inches.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. June 22	0	SW.	1	C. K.	8	1872. June 23	0	W. NW.	2	C. K.	7	1872. June 24	0	SE.	2	C. K. S.	10
	3	W.	1	K.	10		3	NW.	2	C. K.	4		3	SE.	2	N.	10
	6	NW.	1	N.	10		6	NW.	1	C.	3		6	N. by E.	1	C. K.	9
	9	N.	1	C. K.	9		9	NE.	1	C. K.	2		9	E.	1	N.	10
	Noon	N.	2	C. K.	9		Noon	S. by SW.	1	C. K.	6		Noon	E.	1	N.	10
	3	N.	2	C. K.	8		3	SE.	1	C. K.	4		3	E.	2	K.	10
	6	N.	1	C. K.	8		6	S. by E.	2	C. K. S.	6		6	E.	2	C. K.	9
	9	N.	2	C. S.	3		9	W. NW.	2	N.	10		9	SE.	2	C. K.	10
June 25	0	E.	1	K.	10	June 26	0	NW.	2	C. K.	9	June 27	0	W.	1	C. K.	6
	3	N.	1	N.	10		3	NW.	1	C. K.	8		3	W.	1	C.	4
	6	SE.	1	K.	10		6	NW.	1	C. S.	1		6	W.	1	Haze	
	9	S. SW.	2	C. K.	9		9	W.	2	C. K.	7		9	SW.	1	C.	1
	Noon	S.	2	C. K.	8		Noon	W.	1	C. K.	8		Noon	SW.	2	C. K.	3
	3	SW.	2	C. K.	7		3	W.	1	C. K.	9		3	S.	3	C. K.	2
	6	E.	1	C. K.	9		6	S.	1	C. K.	2		6	S. SE.	2	C. K.	8
	9	NW.	1	C. K. S.	3		9	E.	1	C. K.	4		9	S.	4	C. K.	9
June 28	0	S.	1	C. K.	4	June 29	0	NW.	1	C. K.	2	June 30	0	NW.	1	Clear	0
	3	SW.	1	C. K.	6		3	W.	1	C. K. S.	6		3	NW.	2	C.	3
	6	SW.	1	C. K.	5		6	W. NW.	1	C. K.	6		6	NW.	2	C. S.	6
	9	SE.	1	C.	2		9	W.	2	C. K.	8		9	NW.	2	C. K.	2
	Noon	SW.	1	C. K.	4		Noon	W.	2	C. K.	8		Noon	W.	2	C. K.	4
	3	SW.	1	C. K.	8		3	W.	2	C. K.	8		3	NW.	3	C. K.	4
	6	SW.	3	C. K.	8		6	NW.	1	C. K.	4		6	NW.	1	C. K.	6
	9	NW.	1	C. S.	2		9	W.	1	C.	1		9	W.	1	C. K.	3
July 1	0	NW.	1	C. K.	2	July 2	0	NW.	1	C.	1	July 3	0	NW.	1	Clear	0
	3	W.	2	C. K.	3		3	NW.	1	Clear	0		3	W.	1	Clear	0
	6	W.	2	C. K.	4		6	NW.	1	C.	2		6	W.	1	Clear	0
	9	W. NW.	2	C.	3		9	NW.	1	Clear	0		9	W. NW.	2	C. K.	2
	Noon	NW.	2	C. K.	5		Noon	NW.	2	C. K.	6		Noon	W. NW.	2	C. K.	4
	3	NW.	1	C. K.	4		3	NW.	3	C. K.	8		3	S.	1	C. K.	7
	6	W.	1	C. K.	3		6	W.	1	C. K.	4		6	S.	1	C. K.	8
	9	W. NW.	2	C. S.	3		9	W.	1	C.	1		9	W.	1	C. K.	9
July 4	0	SW.	2	C. K.	8	July 5	0	NW.	1	C. K.	4	July 6	0	SE.	1	Clear	0
	3	S.	1	C. K.	6		3	NW.	1	C. K. S.	7		3	NW.	1	C. K.	6
	6	W.	1	C. K.	7		6	NW.	1	Clear	0		6	N. NW.	1	C. K.	2
	9	SW.	1	C. K.	9		9	W.	1	C.	1		9	NE.	2	C. K.	2
	Noon	SE.	1	C.	3		Noon	W.	1	C. K.	4		Noon	NW.	2	C. K.	5
	3	S.	2	C. K.	6		3	NW.	2	C. K.	4		3	N. NW.	1	C. K.	6
	6	NW.	3	C. K.	10		6	N. NW.	2	C. K.	4		6	SE.	2	C. K.	5
	9	NW.	1	C. K. S.	4		9	SE.	1	C.	2		9	SE.	1	C. K.	7

REMARKS.

June 23. Light showers from 8^h p. m. to 2^h p. m. on the 24th; amount of rain, 0.674 inch.
25. Showers at intervals during the day; amount of rain, 0.530 inch.
28. Light showers; amount of rain, 0.040 inch.

July 2. A very light shower at 3^h p. m.
3. Distant thunder at 1^h p. m
4. Several light showers in the evening; amount of rain, 0.104 inch.
6. Lightning during the evening.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force.					Direction.	Force.					Direction.	Force.		
1872.						1872.						1872.					
July 7	0	SW.	1	C. K.	4	July 8	0	W.	1	C.	2	July 9	0	SE.	1	Clear	0
	3	NW.	2	C. K.	9		3	NW.	1	C. K.	8		3	S.	1	K.	10
	6	N.	1	C. K.	9		6	N.	1	C. K.	10		6	S.	1	K.	10
	9	NE.	1	C. K.	9		9	NE.	1	C. K.	8		9	S.	1	C. K.	8
	Noon	S.	1	C. K.	10		Noon	E.	3	C. K.	8		Noon	S.	2	C. K.	6
	3	S.	2	C. K.	8		3	SE.	2	C. K.	8		3	SE.	2	C. K.	8
	6	S. by W.	1	C. K.	9		6	S.	1	C.	3		6	SE.	2	C. K.	9
	9	SW.	1	C. K.	3		9	S.	1	C.	1		9	SE.	2	C. K.	4
July 10	0	SE.	2	C. K.	4	July 11	0	NW.	2	C. K.	2	July 12	0	SW.	4	K.	10
	3	SE.	1	C. K.	6		3	SW.	1	C. K.	9		3	SW.	1	N.	10
	6	W.	1	C. K.	10		6	W.	1	C. K.	8		6	SW.	1	C. K.	10
	9	SW.	1	C. K.	6		9	W.	2	C. K.	8		9	W.	1	K.	10
	Noon	SW.	1	C. K.	7		Noon	W.	2	C. K.	8		Noon	W. by S.	1	C. K.	10
	3	SW.	1	C. K.	4		3	SW.	1	C. K.	9		3	W. SW.	1	C. K.	9
	6	SW.	3	C. K.	8		6	W.	1	C. K. S.	8		6	W.	1	C. K.	9
	9	S.	2	C. K.	2		9	W.	1	C. K.	10		9	SW.	1	C. K.	3
July 13	0	SW.	1	C. K.	4	July 14	0	S. SW.	1	Clear	0	July 15	0	SW.	1	N.	10
	3	W.	1	C. K.	5		3	SW.	1	C. K.	6		3	SW.	1	N.	10
	6	W.	1	C. K.	5		6	SW.	1	C. K.	10		6	SW.	1	C. K.	10
	9	W.	1	C.	2		9	W.	1	C. K.	10		9	S. SW.	2	C. K.	10
	Noon	NW.	1	C. K.	5		Noon	W.	1	C. K.	9		Noon	S. SW.	3	C. K.	10
	3	SW.	1	C. K.	6		3	S. SE.	1	C. K.	7		3	S. SW.	3	C. K.	6
	6	SW.	1	C. K.	10		6	SW.	1	C. K.	9		6	SW.	1	C. K.	9
	9	SW.	1	C. K.	6		9	SW.	1	C. K.	8		9	SW.	1	C. K.	8
July 16	0	SW.	3	C. K.	9	July 17	0	SW.	2	C. K.	4	July 18	0	W.	1	C. K.	5
	3	SW.	3	C. K.	8		3	SW.	2	C. K.	6		3	W.	1	C.	2
	6	SW.	2	C. K.	8		6	SW.	1	C. K.	7		6	W.	2	C.	1
	9	SW.	2	C. K. S.	4		9	W.	1	C. K.	9		9	NW.	3	C. K.	1
	Noon	W. by S.	2	C. K.	7		Noon	W. NW.	1	C. K.	8		Noon	W. NW.	3	C. K.	3
	3	SW.	2	C. K.	10		3	W.	3	C. K.	8		3	NW.	2	C. K.	7
	6	SW.	2	C. K.	9		6	W.	1	C. K.	7		6	SW.	1	C. K.	4
	9	SW.	1	C. K. S.	4		9	W.	1	C. K.	6		9	W.	1	C. K.	9
July 19	0	W.	1	C. K.	9	July 20	0	NW.	2	Clear	0	July 21	0	NW.	1	Clear	0
	3	NW.	3	C. K.	9		3	NW.	1	C. K.	5		3	NW.	1	Clear	0
	6	NW.	2	C. K.	7		6	NW.	1	Clear	0		6	W.	1	C. S.	4
	9	NW.	2	C. S.	4		9	NE.	2	Clear	0		9	S.	2	C. K.	7
	Noon	NW.	3	C. S.	4		Noon	N.	2	C. K.	2		Noon	S. SW.	2	C. K.	7
	3	NW.	3	C. K.	7		3	W.	2	C. K.	2		3	S.	3	C. K.	9
	6	N. NW.	2	C. K.	8		6	SW.	1	Clear	0		6	S.	2	C. K.	9
	9	NW.	2	C. K.	3		9	SE.	1	Clear	0		9	S.	3	C. K.	10

REMARKS.

July 7. Lightning and thunder at $1^h\ 25^m$ a. m. Aurora borealis visible in the evening.
8. Aurora borealis visible from 9^h p. m. till after midnight.
10. Lightning and thunder at 7^h p. m. and continued through the night.
11. Shower at $4^h\ 25^m$ p. m.; amount, 0.360 inch.
12. Showers at $0^h\ 5^m$ and $8^h\ 30^m$ a. m.; amount, 0.256 inch.
14. Lightning during the night.
15. Light showers in the morning; amount, 0.060 inch.
21. Rain at $9^h\ 40^m$ p. m.; amount, 0.058 inch.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872.						1872.						1872.					
July 22	0	SW.	1	N.	10	July 23	0	NW.	1	C. K.	2	July 24	0	SW.	1	C.	4
	3	W.	1	C. K.	9		3	NW.	1	C. K.	9		3	S.	1	C. K.	10
	6	NW.	3	Clear	0		6	NW.	1	C. K.	9		6	W.	1	C. K. S.	8
	9	NW.	5	C.	2		9	W.	1	C. K.	9		9	NW.	2	C. K.	6
	Noon	N. NW.	4	Clear	0		Noon	S.	1	C. K.	10		Noon	NW.	3	C. K.	10
	3	N. NW.	4	Clear	0		3	S.	2	C. K.	10		3	NW.	2	C. K.	7
	6	NW.	3	C. K.	4		6	S.	2	C. K.	8		6	NW.	2	C. K.	7
	9	NW.	2	C. K. S.	2		9	S.	1	Clear	0		9	NW.	1	C. K.	6
July 25	0	NW.	1	C. K.	5	July 26	0	S. SW.	2	C. K.	8	July 27	0	NW.	3	C.	4
	3	NW.	1	C. K.	3		3	S. SW.	2	C. K.	10		3	NW.	2	C.	3
	6	NW.	1	C. K.	4		6	SW.	2	C. K.	10		6	NW.	2	Clear	0
	9	S.	1	C. S.	4		9	W.	2	C. K.	7		9	N. NW.	2	C. K.	1
	Noon	S.	1	C. K.	5		Noon	W.	4	C. K.	7		Noon	N. NW.	2	C. K.	6
	3	S.	1	C. K.	3		3	W.	4	C. K.	7		3	NW.	2	C. K.	1
	6	SW.	1	C. K.	9		6	W.	3	C. K.	4		6	N. NE.	1	C. K.	2
	9	SW.	1	K.	10		9	W.	1	C. K.	4		9	N.	1	Clear	0
July 28	0	W.	1	Clear	0	July 29	0	S. SW.	1	C.	2	July 30	0	S.	1	Clear	0
	3	W.	1	C. K.	5		3	SW.	1	Clear	0		3	W.	1	Clear	0
	6	W.	1	C. K.	4		6	SW.	1	K.	10		6	W.	1	C. K.	8
	9	S.	1	C.	4		9	SW.	1	C. K.	10		9	N. NW.	1	C. K.	1
	Noon	S.	2	C. K.	6		Noon	S. SW.	1	C. K.	8		Noon	NW.	2	C. K.	8
	3	S. SW.	2	C. K.	7		3	S.	2	C. K.	6		3	NW.	1	C. K.	8
	6	SW.	3	C. K.	2		6	S.	1	C. S.	2		6	E.	1	C. K.	8
	9	W.	1	Clear	0		9	S.	1	S.	1		9	E.	1	Clear	0
July 31	0	NE.	1	C. K.	9												
	3	S.	1	C. K.	9												
	6	S.	1	C. K.	10												
	9	S.	2	C. K.	9												
	Noon	SW.	2	C. K.	10												
	3	W.	1	K.	10												
	6	NW.	1	C. K.	5												
	9	NW.	1	C. K.	2												
Aug. 1	0	N. NW.	2	Clear	0	Aug. 2	0	SW.	1	C. K.	10	Aug. 3	0	NW.	1	C. K.	9
	3	NE.	1	Clear	0		3	NW.	1	C. K.	8		3	NW.	1	C. K.	6
	6	NE.	2	Clear	0		6	NW.	1	K.	10		6	W.	1	C. K.	5
	9	NE.	1	C. K.	2		9	NW.	1	C. K.	9		9	NW.	2	C. S.	2
	Noon	S.	1	C. K.	8		Noon	NW.	1	C. K.	7		Noon	NW.	1	C. S.	3
	3	S.	2	C. K.	7		3	SE.	2	C. K.	6		3	NW.	1	C. K.	4
	6	S.	3	C. K.	3		6	S. SE.	1	C. K.	3		6	NW.	1	S.	1
	9	E.	1	N.	10		9	S.	.	C. K.	8		9	NW.	1	C. K. S.	2

REMARKS.

July 24. Light shower at $3^h\ 15^m$ a. m.
29. Several small meteors were seen during the evening.
A few drops of rain at $3^h\ 25^m$ p. m.
August 1. Shower at 9^h p. m.; amount, 0.173 inch.
2. Shower at $9^h\ 45^m$ p. m.; amount, 0.740 inch.
3. Aurora borealis visible for two hours after dark.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force.					Direction.	Force.					Direction.	Force.		
1872. Aug. 4	0	NW.	1	C. S.	2	1872. Aug. 5	0	NE.	1	K.	10	1872. Aug. 6	0	S.	2	C. K.	9
	3	NW.	1	C. K.	7		3	N.	1	K.	10		3	S.	1	N.	10
	6	NW.	1	C. K.	5		6	NE.	1	C. K.	8		6	S.	1	C. K.	10
	9	NW.	2	Clear	0		9	SE.	1	Haze			9	SW.	1	C. K.	10
	Noon	NW.	2	C. K.	4		Noon	S. by W.	1	C. K.	8		Noon	SW.	1	C. K.	7
	3	NW.	2	C. K.	4		3	S. SE.	1	C. K.	4		3	S.	2	C. K.	4
	6	NE.	2	S.	2		6	SE.	3	C. K.	9		6	S. SE.	2	C. K. S.	8
	9	N.	1	C. S.	3		9	S.	3	C. K.	10		9	S.	1	Clear	0
Aug. 7	0	S.	1	Clear	0	Aug. 8	0	SW.	1	Clear	0	Aug. 9	0	SW.	1	C. K.	1
	3	S.	1	Clear	0		3	SW.	1	Clear	0		3	SW.	1	C. K.	2
	6	S. SW.	1	Haze			6	SW.	1	Clear	0		6	SW.	1	C. K.	1
	9	SW.	1	C. K.	3		9	SW.	1	C. K.	2		9	SE.	1	C.	1
	Noon	S.	1	C. K.	6		Noon	S.	1	C. K.	4		Noon	S. SE.	1	C. K.	4
	3	S.	1	C. K.	6		3	S. SE.	2	C. K.	2		3	SE.	1	C. K.	4
	6	SE.	2	C. K.	4		6	S	1	Clear	0		6	SE.	2	C.	1
	9	S.	2	Clear	0		9	S	2	Clear	0		9	S. SE.	2	Clear	0
Aug. 10	0	SE.	1	Clear	0	Aug. 11	0	SE.	1	C. K.	10	Aug. 12	0	SW.	1	C. K.	8
	3	S.	1	Clear	0		3	SE.	1	C. K.	4		3	SW.	1	C. K.	8
	6	S. SW.	1	C. K.	4		6	NW.	1	C. K.	6		6	W.	1	C. K.	9
	9	SW.	1	Clear	0		9	NW.	1	C. K.	3		9	SW.	1	C. K.	3
	Noon	S.	2	C. K.	6		Noon	S. SW.	1	C. K.	2		Noon	Calm	0	C. K.	1
	3	S.	3	C. K.	4		3	SE.	1	C. K.	2		3	Calm	0	C. K.	1
	6	S.	2	C. K.	5		6	W.	2	N.	10		6	SW.	1	C. K. N.	9
	9	NW.	4	K.	10		9	S.	1	C. K.	8		9	NE.	1	C. K.	10
Aug. 13	0	NW.	2	Clear	0	Aug. 14	0	W.	1	C. K.	8	Aug. 15	0	SW.	1	C. K.	9
	3	NW.	1	C. S.	2		3	W.	1	C.	3		3	SW.	1	C. K.	7
	6	NW.	1	Clear	0		6	SW.	1	C. S.	4		6	SW.	1	C. K.	9
	9	SW.	1	C. K.	3		9	SW.	1	C. K.	2		9	SW.	1	C. S.	4
	Noon	SE.	1	C. K.	3		Noon	SW.	2	C. K.	3		Noon	W.	1	C. K.	4
	3	S.	3	C. K.	7		3	SE.	1	C. K.	6		3	NW.	1	C. K.	9
	6	W.	1	C. K.	6		6	E.	1	C. K.	8		6	SW.	2	N.	10
	9	W.	1	C. K.	10		9	N. NW.	2	N.	10		9	W.	1	N.	10
Aug. 16	0	NW.	1	C. K.	10	Aug. 17	0	SW.	2	N.	10	Aug. 18	0	W.	1	C.	2
	3	NW.	1	C. K.	7		3	SW.	1	K.	10		3	NW.	1	C. K.	3
	6	E.	1	N.	10		6	SW.	1	K.	10		6	NW.	1	Haze	
	9	SE.	1	C. K.	9		9	NW.	1	C. K.	3		9	SW.	1	C.	1
	Noon	SW.	1	N.	10		Noon	W. SW.	1	C. K.	3		Noon	S.	1	C. K.	7
	3	S.	1	C. K.	10		3	W.	1	C. K.	3		3	S.	1	C. K.	4
	6	S.	1	N.	10		6	W.	1	C. K.	2		6	S. SW.	1	C. K.	7
	9	SW.	1	N.	10		9	W.	1	C. K.	7		9	S.	1	Clear	0

REMARKS.

August 6. Many meteors were seen between 8^h and 10^h p. m.
Light shower at 3^h a. m.; amount of rain, 0.008 inch.
7. Aurora borealis visible during the evening.
9. Twenty-three meteors were seen between 9^h and 10^h p. m.; all small.
10. Rain in light showers during the day; amount, 0.172 inch.
Counted thirteen meteors "near Perseus" from 1^h to 2^h a. m.
11. Thirty-eight meteors were counted from 3^h 10^m to 4^h a. m.; all small.
Light shower at 6^h p. m.; amount of rain, 0.068 inch.
12. Rain at 6^h p. m.; amount, 0.200 inch.
14. Heavy shower, accompanied by intense lightning and heavy thunder, at 8^h 10^m p. m.; amount of rain, 0.898 inch.
15. Rain at 5^h 30^m p. m.; amount, 0.470 inch.
16. Raining at intervals during the day; amount, 1.294 inches.
17. Light rain in the morning; amount, 0.010 inch.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. Aug. 19	0	S. SW.	1	C. K.	1
	3	S.	1	C. S.	2
	6	S. SW.	1	C. K.	4
	9	W.	1	C. K.	3
	Noon	S.	1	C. K.	3
	3	S.	1	C. K.	4
	6	S.	1	C. K.	6
	9	S.	1	C. S.	4
1872. Aug. 20	0	S.	1	C. S.	4
	3	W.	1	C. S.	3
	6	NW.	1	C. K.	8
	9	W. NW.	1	C. K.	2
	Noon	W.	1	C. K.	1
	3	W.	1	Clear	0
	6	W.	1	C. K.	3
	9	C. K.	1	C. K.	2
1872. Aug. 21	0	N.	1	C. K.	3
	3	NW.	1	C. K.	4
	6	NW.	1	C. K.	8
	9	W.	1	C. K.	4
	Noon	N.	1	C. K.	7
	3	N.	1	C. K.	4
	6	W.	1	C. S.	2
	9	N.	1	Clear	0
Aug. 22	0	SW.	1	C.	2
	3	W.	1	C. K.	6
	6	W.	1	C. K.	8
	9	W. NW.	1	C. K	8
	Noon	W.	2	C K	4
	3	W.	2	C. K.	3
	6	SW.	1	C. K.	4
	9	SW.	1	C. K.	6
Aug. 23	0	E.	1	K.	10
	3	NW.	1	C. K.	6
	6	NW.	2	C. K.	3
	9	NW.	2	C. K.	3
	Noon	W. NW.	2	Clear	0
	3	NW.	2	Clear	0
	6	N.	2	C. K.	3
	9	NW.	1	Clear	0
Aug. 24	0	W.	1	Clear	0
	3	W.	1	Clear	0
	6	W. NW.	1	C. K.	9
	9	NE.	1	C. K.	8
	Noon	NE.	1	C. K.	6
	3	NE.	1	C. K.	6
	6	NE.	1	C. K.	3
	9	N.	1	C.	1
Aug. 25	0	E.	1	C. K.	8
	3	E.	1	C. K.	6
	6	SE.	1	C. K.	8
	9	SW.	3	C. K.	1
	Noon	S. SW.	2	C. K.	2
	3	S. SW.	2	C. K.	3
	6	S.	1	C. K.	6
	9	SE.	2	C. K.	4
Aug. 26	0	S.	1	C. K.	3
	3	SW.	1	C. K.	3
	6	W.	1	Clear	0
	9	N.	1	Clear	0
	Noon	NW.	2	C.	1
	3	W.	1	C.	2
	6	NW.	1	C. K.	2
	9	W.	1	S.	1
Aug. 27	0	W.	1	C. K.	4
	3	S. SW.	1	C. K.	10
	6	S. SW.	1	C. K.	10
	9	NW.	1	C. K.	9
	Noon	NW.	3	C. K	8
	3	NW.	3	C. K	9
	6	NW.	1	C. S.	3
	9	N.	1	C. K.	7
Aug. 28	0	N.	2	C. K.	6
	3	N.	1	Clear	0
	6	NW.	1	C. S.	2
	9	NE.	2	C.	2
	Noon	W.	1	C. K.	8
	3	NE.	1	C. K.	9
	6	E.	1	C. K.	9
	9	E.	1	K.	10
Aug. 29	0	E.	2	N.	10
	3	E.	2	N.	10
	6	E.	2	N.	10
	9	E.	1	N.	10
	Noon	E.	1	N.	10
	3	SE.	1	N.	10
	6	SE.	1	K.	10
	9	SE.	1	K.	10
Aug. 30	0	SE.	1	K.	10
	3	NW.	2	K.	10
	6	NW.	3	C. K.	3
	9	NW.	3	C. K.	4
	Noon	NW.	3	C. K.	4
	3	NW.	3	C. K.	3
	6	NW.	2	C.	1
	9	NW.	2	Clear	0
Aug. 31	0	NW.	1	Clear	0
	3	W.	1	Clear	0
	6	W.	1	Clear	0
	9	NW.	3	Clear	0
	Noon	NW.	4	Clear	0
	3	NW.	3	C. K.	1
	6	NW.	1	Clear	0
	9	NW.	2	Clear	0

REMARKS.

August 21. Lightning during the night.
22. Lightning during the night.
27. A few drops of rain at $5^h\ 55^m$ a. m.
28. Rain from $9^h\ 30^m$ p. m. through the day on the 29th; amount, 2.100 inches.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy	Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. Sept. 1	0	NW.	2	Clear	0	1872. Sept. 2	0	SW.	1	Clear	0	1872. Sept. 3	0	NW.	1	C. K.	4
	3	NW.	1	Clear	0		3	SW.	1	C. K.	2		3	NW.	1	C. K.	6
	6	NW.	1	Clear	0		6	SW.	1	C. K.	5		6	N.	1	C.	2
	9	NW.	2	C.	2		9	W.	1	C. K.	6		9	N.	2	C. K.	4
	Noon	W. NW.	1	C.	1		Noon	W.	2	C. K.	6		Noon	N. NW.	2	C. K.	2
	3	W.	1	C. S.	4		3	NW.	1	C. K.	9		3	N. NW.	2	Clear	0
	6	SW.	1	C. K.	9		6	W.	1	C. K.	6		6	NE.	1	Clear	0
	9	SW.	1	C. S.	1		9	W.	1	K.	10		9	N.	2	Clear	0
Sept. 4	0	NW.	1	Clear	0	Sept. 5	0	W.	1	C.	1	Sept. 6	0	SE.	1	K.	10
	3	NW.	1	C. K.	3		3	W.	1	C. K.	10		3	W.	1	N.	10
	6	NW.	1	C. K.	9		6	W. NW.	1	C. K.	10		6	N.	1	C. K.	9
	9	E.	1	C. K. S.	6		9	W.	1	N.	10		9	W. SW.	1	C. K.	8
	Noon	W.	1	C. S.	4		Noon	W. NW.	1	C. K.	10		Noon	SE.	1	C. K.	8
	3	SE.	1	C.	1		3	W.	1	N.	10		3	SE.	1	C. K.	2
	6	W. SW.	1	C. K.	2		6	SW.	1	C. K.	10		6	S.	1	Haze	
	9	W.	1	Clear	0		9	SW.	1	C. K.	6		9	Calm	0	C. K.	3
Sept. 7	0	W.	1	C. K.	2	Sept. 8	0	SW.	1	Clear	0	Sept. 9	0	N.	1	Clear	0
	3	N.	1	C. K.	4		3	W.	1	Clear	0		3	N.	1	Clear	0
	6	Calm	0	C. K.	8		6	NW.	1	Haze			6	W.	1	Haze	
	9	W. NW.	1	C. K.	7		9	W.	1	Haze			9	W. NW.	1	Haze	
	Noon	W. NW.	1	Haze			Noon	W.	1	Haze			Noon	W. SW.	1	Haze	
	3	W.	1	Haze			3	S. SE.	1	Haze			3	SE.	1	C. K.	4
	6	SW.	1	Haze			6	S.	1	C. K.	4		6	NE.	2	C. K.	8
	9	SW.	1	Clear	0		9	N.	1	C.	1		9	NW.	3	C. K.	9
Sept. 10	0	NW.	2	C. K.	7	Sept. 11	0	NE.	1	K.	10	Sept. 12	0	SE.	1	Clear	0
	3	NE.	1	C. K.	8		3	NE.	1	Mist	10		3	SE.	1	K.	10
	6	N.	1	C. K.	9		6	N. NE	1	Mist	10		6	E.	1	N.	10
	9	NE.	3	C. K.	10		9	NE.	1	Mist	10		9	S.	1	C. K.	9
	Noon	NE.	3	C. K.	8		Noon	E.	1	K.	10		Noon	S. by E.	2	C. K.	9
	3	NE.	2	N.	10		3	N.	1	K.	10		3	S. SE.	2	N.	10
	6	NE.	1	K.	10		6	N.	1	C. K.	8		6	S. SE.	2	N.	10
	9	NE.	1	K.	10		9	NE.	1	C. K.	8		9	S.	1	K.	10
Sept. 13	0	S.	1	N.	10	Sept. 14	0	N. NW.	2	C. K. S.	6	Sept. 15	0	NW.	1	C. K.	1
	3	NW.	1	N.	10		3	NW.	1	C. K.	9		3	NW.	3	C. K.	4
	6	N.	1	C. K.	9		6	NW.	1	C. K.	8		6	NW.	2	C. K.	9
	9	NW.	1	C. K.	9		9	NW.	2	C. K.	8		9	NW.	2	C. K.	10
	Noon	NW.	1	C. K.	9		Noon	NW.	2	C.	4		Noon	NW.	2	C. K.	10
	3	NW.	1	C. K.	8		3	NW.	2	C. S.	2		3	NW.	2	C. K.	6
	6	NW.	1	C. K. S.	9		6	N.	2	C. K.	2		6	NW.	1	K.	10
	9	NW.	1	C. K.	9		9	NW.	1	C. K.	2		9	NW.	2	K.	10

REMARKS.

September 5. Light showers at intervals during the day; amount, 0.100 inch.
6. Light shower at 3^{h} a. m.; amount, 0.060 inch.
12. Rain during the day; amount, 0.890 inch.
13. Rain in the morning; amount, 0.324 inch.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force					Direction.	Force.					Direct'on.	Force.		
1872.						1872.						1872.					
Sept. 16	0	NW.	2	K.	10	Sept. 17	0	NW.	1	Clear	0	Sept. 18	0	W. NW.	2	C. K.	7
	3	NW.	2	C.	3		3	NW.	1	Clear	0		3	W. NW.	2	C. K.	7
	6	NW.	2	Clear	0		6	NW.	1	Clear	0		6	NW.	1	C K.	6
	9	NW.	2	Clear	0		9	NW.	1	C. K.	4		9	NW.	1	C. K.	1
	Noon	W.	2	C. K.	2		Noon	NW.	1	C.	2		Noon	NW.	1	C. K.	1
	3	NW.	2	C.	1		3	SE.	1	C. S.	2		3	SE.	1	C. K.	1
	6	NW.	1	Clear	0		6	SE.	1	C. K.	9		6	S .	1	Clear	0
	9	NW.	1	Clear	0		9	SE.	1	C. K.	8		9	.	1	Clear	0
Sept. 19	0	S. by W.	1	Clear	0	Sept. 20	0	W.	2	Clear	0	Sept. 21	0	NW.	1	Clear	0
	3	SW.	1	Clear	0		3	W. NW.	2	C. K.	2		3	W.	1	C. K.	6
	6	W.	1	N.	10		6	NW.	3	Clear	0		6	W.	1	C. K.	8
	9	W.	1	C. K.	4		9	NW.	3	C.	2		9	S. SW.	1	C. K.	4
	Noon	W.	3	C. K.	7		Noon	W. NW.	3	C.	2		Noon	SE.	1	C.	1
	3	NW.	4	C. K.	3		3	W.	3	Clear	0		3	S. SW.	2	Clear	0
	6	NW.	2	C. K. S.	2		6	NW.	1	Clear	0		6	SW,	1	Clear	0
	9	NW.	2	Clear	0		9	NW.	1	Clear	0		9	S.	1	Clear	0
Sept. 22	0	W.	1	C. K.	7	Sept. 23	0	W. NW.	1	C.	3	Sept. 24	0	S.	1	C. K.	8
	3	W.	1	Clear	0		3	W. NW.	1	C. K.	6		3	S.	1	Clear	0
	6	W.	1	Clear	0		6	NW.	1	C. K. S.	8		6	S.	1	Fog	
	9	W.	1	Haze			9	E.	1	C. K.	6		9	SE.	1	Clear	0
	Noon	W.	1	Haze			Noon	S.	1	C. K.	5		Noon	SE.	1	Clear	0
	3	SW.	1	Haze			3	S.	1	C. K.	4		3	SE.	2	Clear	0
	6	S.	1	C. K. S.	2		6	SE.	1	C. K.	8		6	SE.	1	Clear	0
	9	S. SW.	1	C. K.	1		9	SE.	1	C. K.	4		9	SE.	1	Clear	0
Sept. 25	0	S.	1	Clear	0	Sept. 26	0	W.	1	K.	10	Sept. 27	0	NW.	2	N.	10
	3	SE.	1	C. K.	6		3	NW.	1	C. K.	10		3	SE.	1	C. K.	10
	6	SE.	1	C. K.	9		6	W. NW.	2	C. K.	5		6	NW.	1	C. K.	9
	9	S.	1	C. K.	10		9	NW.	2	C.	1		9	NW.	3	C. K.	2
	Noon	S.	3	C. K.	9		Noon	W. NW.	1	C. K.	4		Noon	NW.	2	C. K.	4
	3	S.	3	C. K.	9		3	SW.	1	C. K.	4		3	NW.	1	C.	2
	6	S. SW.	2	N.	10		6	SE.	1	C. K.	10		6	NW.	1	C.	2
	9	SW.	1	C. K. S.	4		9	Calm	0	K.	10		9	NW.	1	Clear	0
Sept. 28	0	NW.	1	Clear	0	Sept. 29	0	SW.	1	C. K.	4	Sept. 30	0	SW.	1	Clear	0
	3	NW.	1	Clear	0		3	SW.	2	C. K.	4		3	S.	1	C. K.	2
	6	NW.	1	Clear	0		6	S.	1	C. K. S.	5		6	W. NW.	1	Haze	
	9	E.	1	C. K.	3		9	S.	2	C. K.	10		9	N. by W.	1	C.	1
	Noon	S. SE.	1	C. K.	2		Noon	S.	4	K.	10		Noon	W. SW.	1	C. K.	9
	3	S.	1	C. K.	2		3	S. SW.	2	C. K.	6		3	E. SE.	1	C. K.	9
	6	S. by W.	1	C. K. S.	9		6	S.	2	C. K.	6		6	NE.	2	C. K.	7
	9	SW.	1	C. K.	4		9	SW.	2	C. K.	7		9	E.	1	K.	10

REMARKS.

September 19. A light shower at $5^h\ 45^m$ a. m.; amount, 0.020 inch.
25. Heavy rain from $3^h\ 30^m$ to 7^h p. m.; amount, 2.156 inches.
26. Showers during the evening till 3^h a. m. on the 27th; amount, 0.754 inch.
29. Light mist at $11^h\ 30^m$ a. m. Lightning in the north at $7^h\ 30^m$ p. m.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather	Portion cloudy.
		Direction.	Force.					Direction.	Force.					Direction.	Force.		
1872.						1872.						1872.					
Oct. 1	0	NW.	2	C. K.	8	Oct. 2	0	NW.	2	Clear	0	Oct. 3	0	SW.	1	C. K.	8
	3	NW.	2	N.	10		3	NW.	3	Clear	0		3	SW.	1	C. K.	3
	6	NW.	2	C. K.	9		6	NW.	3	Clear	0		6	SW.	1	C. K.	8
	9	NW.	3	C. K.	3		9	NW.	3	Clear	0		9	SW.	1	C. K.	10
	Noon	W. NW.	3	C. K.	4		Noon	W. NW.	2	C.	2		Noon	SW.	2	C. K.	7
	3	NW.	3	C. K.	4		3	W.	1	C. K.	3		3	SW.	2	C. K.	8
	6	W. NW.	1	S.	1		6	SW.	1	C. K.	9		6	SW.	2	C. K.	8
	9	NW.	1	S.	1		9	SW.	1	C. K.	4		9	S.	1	C. K.	9
Oct. 4	0	S.	1	C. K.	9	Oct. 5	0	E.	1	Clear	0	Oct. 6	0	E.	1	C. K.	10
	3	NE.	1	C.	4		3	NE.	1	Clear	0		3	E.	1	Mist	10
	6	N.	1	C.	3		6	NE.	1	C.	10		6	S. SE.	1	Fog	
	9	NE.	2	C. K.	10		9	NE.	1	C. K.	8		9	SW.	1	C. K.	8
	Noon	SE.	1	C. K.	10		Noon	SW.	1	C. K.	6		Noon	S.	2	C. K.	6
	3	S.	1	C. K.	9		3	SE.	1	C. K.	8		3	S.	2	C. K.	7
	6	E.	1	C. K. S.	3		6	SE.	1	K.	10		6	SE.	1	C.	2
	9	SE.	1	C.	1		9	SE.	1	C. K.	9		9	SE.	2	C. K.	6
Oct. 7	0	S.	1	C. K.	10	Oct. 8	0	NW.	2	K.	10	Oct. 9	0	W.	1	Clear	0
	3	S.	1	K.	10		3	NW.	3	C. K.	2		3	W.	1	Clear	0
	6	S.	1	K.	10		6	NW.	3	C. K. S.	5		6	W.	1	Haze	
	9	S.	2	C. K.	10		9	NW.	3	C.	2		9	NW.	1	Clear	0
	Noon	S.	3	C. K.	10		Noon	NW.	2	C. K.	4		Noon	NW.	1	Clear	0
	3	N.	2	N.	10		3	NW.	1	C. K.	5		3	S. SW.	1	Clear	0
	6	SE.	1	C. K. S.	10		6	W.	1	Clear.	0		6	S.	1	Clear	0
	9	W.	1	K.	10		9	W.	1	Clear	0		9	SW.	1	Clear	0
Oct. 10	0	W.	1	Clear	0	Oct. 11	0	NW.	2	Clear	0	Oct. 12	0	NW.	2	C. K.	2
	3	W.	1	Clear	0		3	NW.	2	Clear	0		3	NW.	1	Clear	0
	6	SW.	1	Clear	0		6	NW.	3	C. K. S.	3		6	NW.	1	Haze	
	9	SW.	1	C. K.	5		9	NW	3	Clear	0		9	NW.	1	Clear	0
	Noon	S.	2	C. K.	4		Noon	NW	3	C. K.	7		Noon	S.	1	C .K.	5
	3	SW.	2	C. K.	3		3	NW	2	C. K.	10		3	S. SW.	1	C. K.	5
	6	N. NW.	3	C. K.	10		6	NW	2	C. K.	9		6	S.	1	C. K.	8
	9	N. NW.	3	Clear	0		9	NW.	2	C. K.	9		9	S.	1	K.	10
Oct. 13	0	S.	1	K.	10	Oct. 14	0	W.	1	C. K.	9	Oct. 15	0	W. NW.	3	C. K.	9
	3	S.	1	K.	10		3	NW.	1	Clear	0		3	NW.	2	C. K.	5
	6	S.	1	K.	10		6	SW.	2	C. K. S.	10		6	W. NW.	3	C. K.	4
	9	S.	2	C. K.	10		9	W. NW.	3	C. K.	7		9	NW.	2	C.	1
	Noon	S.	2	K.	10		Noon	W. NW.	4	C. K.	6		Noon	NW.	2	C. K.	2
	3	S.	1	C. K.	10		3	W. NW.	4	C. K.	4		3	S. SW.	1	C. K.	4
	6	N. NW.	1	C. K. S.	6		6	W. NW.	3	C. K.	4		6	S.	1	Clear	0
	9	N. NW.	1	C. K.	7		9	W. NW.	4	C. K.	8		9	S.	2	Clear	0

REMARKS.

October 1. Lightning in the north at midnight, and rain at $2^h\ 30^m$ a. m.; amount, 0.020 inch.
7. Raining heavily at 1^h p. m.; amount, 0.610 inch.
12. A white frost this morning.
14. A light shower at $5^h\ 30$ a. m.
15. Auroro borealis visible from 6^h p. m. until near daylight.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. Oct. 16	0	S.	3	Haze	
	3	SW.	2	Clear	0
	6	SW.	1	Clear	0
	9	SW.	2	Clear	0
	Noon	S.	2	C. K.	9
	3	S.	1	C. K.	8
	6	S. by W.	1	C. K. S.	10
	9	S. by W.	2	Haze	
1872. Oct. 17	0	NE.	2	Haze	
	3	NE.	1	Haze	
	6	N. NE.	1	C. K. S.	10
	9	NE.	2	C. K.	8
	Noon	E.	1	C. K.	6
	3	S.	1	C. K.	6
	6	E.	1	C. K.	10
	9	E.	1	C. K.	9
1872. Oct. 18	0	E.	1	C. K.	10
	3	E.	1	K.	10
	6	SE.	1	Fog	
	9	SW.	1	N.	10
	Noon	W.	1	C. K.	10
	3	W.	1	C. K.	10
	6	W. NW.	1	C. K.	10
	9	NW.	2	C.	4
Oct. 19	0	NW.	1	Clear	0
	3	NW.	1	Clear	0
	6	NW.	1	Clear	0
	9	NW.	2	Clear	0
	Noon	NW.	3	C. K.	3
	3	NW.	3	C. K.	8
	6	NW.	1	C. K. S.	3
	9	N. NW.	2	C. K. S.	7
Oct. 20	0	NW.	1	Clear	0
	3	NW.	1	Clear	0
	6	NW.	1	C. S.	1
	9	NW.	1	Clear	0
	Noon	SW.	1	Clear	0
	3	W.	1	Clear	0
	6	W.	1	C. S.	1
	9	W.	1	Clear	0
Oct. 21	0	W.	1	Clear	0
	3	W.	1	Clear	0
	6	W.	1	Fog	
	9	S. SE.	1	Clear	0
	Noon	SE.	1	Haze	
	3	SE.	1	C. K.	6
	6	S. by E.	1	C. K.	4
	9	E.	1	C.	3
Oct. 22	0	S.	1	C. K.	6
	3	S.	1	C. K.	8
	6	S.	1	C. K.	10
	9	S.	1	C. K.	5
	Noon	S.	2	C. K.	9
	3	SW.	2	C. K.	9
	6	S.	1	C. K.	9
	9	S.	1	C. K.	10
Oct. 23	0	S.	1	K.	10
	3	SW.	1	K.	10
	6	W.	1	K.	10
	9	N.	1	K.	10
	Noon	W.	1	K.	10
	3	NW.	1	K.	10
	6	N.	1	N.	10
	9	NW.	2	N.	10
Oct. 24	0	N.	3	K.	10
	3	NE.	3	N.	10
	6	NE.	3	K.	10
	9	NE.	3	K.	10
	Noon	NE.	3	K.	10
	3	NE.	3	K.	10
	6	NE.	3	N.	10
	9	NE.	3	N.	10
Oct. 25	0	NE.	3	N.	10
	3	NE.	4	N.	10
	6	NE.	4	N.	10
	9	E.	3	K.	10
	Noon	NE.	4	N.	10
	3	NE.	3	N.	10
	6	NE.	3	N.	10
	9	E.	2	N.	10
Oct. 26	0	W.	1	N.	10
	3	W.	2	N.	10
	6	W.	1	K.	10
	9	W.	2	C. K.	4
	Noon	W.	2	C. K.	7
	3	NW.	2	C. K.	7
	6	W.	1	C. K.	10
	9	W.	2	C. K.	2
Oct. 27	0	NW.	1	C.	1
	3	NW.	1	C.	1
	6	NW.	1	C. K.	3
	9	SW.	1	C. K.	2
	Noon	W. NW.	1	C. K.	9
	3	W. by N.	1	C. K.	7
	6	NW.	2	C. K.	9
	9	SW.	1	C. K.	4
Oct. 28	0	SW.	1	C. K.	8
	3	NW.	2	C. K.	6
	6	N.	1	K.	10
	9	NE.	3	K.	10
	Noon	NE.	3	K.	10
	3	NE.	2	K.	10
	6	NE.	2	C. K.	10
	9	NE.	1	Clear	0
Oct. 29	0	N.	1	Clear	0
	3	N.	2	Clear	0
	6	N.	1	Clear	0
	9	N. NE.	2	Clear	0
	Noon	NE.	2	C.	2
	3	E.	2	Clear	0
	6	NE.	1	Clear	0
	9	N.	1	Clear	0
Oct. 30	0	NW.	1	Clear	0
	3	NW.	1	Clear	0
	6	NW.	1	C. S.	1
	9	N. NE.	2	C. K.	6
	Noon	E. NE.	1	C. K.	10
	3	E. NE.	1	C. K.	4
	6	NE.	1	C. S.	2
	9	N.	1	K.	10

REMARKS.

October 17. Lightning and thunder at $8^h\ 25^m$ p. m. and a few drops of rain at $8^h\ 40^m$ p. m.
23. Began to rain at 1^h p. m.; amount, 0.608 inch.
24. Rain during the day; amount, 1.300 inches.
25. Rain during the day; amount, 1.324 inches.
26. Raining in the morning; amount, 0.120 inch.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force.					Direction.	Force.					Direction.	Force.		
1872. Oct. 31	0	E.	1	K.	10	1872.						1872.					
	3	N.	1	C. K.	10												
	6	NW.	1	C. S.	4												
	9	NW.	1	C. K.	10												
	Noon	NW.	1	C. K.	9												
	3	NW.	1	C. K.	3												
	6	W.	1	S.	1												
	9	W.	1	Clear	0												
Nov. 1	0	NW.	2	Clear	0	Nov. 2	0	NW.	1	C.	2	Nov. 3	0	SE.	1	N.	10
	3	NW.	1	Clear	0		3	W. NW.	1	C. K.	4		3	SW.	2	N.	10
	6	W. NW.	2	S.	1		6	W. NW.	1	C. K.	6		6	NW.	3	K.	10
	9	NW.	2	Clear	0		9	W.	1	C. K.	10		9	W.	3	C. K.	3
	Noon	NW.	3	C. K.	2		Noon	SW.	1	C. K.	10		Noon	W.	3	C. K.	9
	3	NW.	3	C. K.	4		3	S. SW.	1	C. K.	10		3	W. NW.	3	C. K.	4
	6	NW.	3	Clear	0		6	NE.	1	N.	10		6	NW.	2	C. K. S.	9
	9	NW.	1	Clear	0		9	E.	1	N.	10		9	NW.	1	Clear	0
Nov. 4	0	W. NW.	2	Clear	0	Nov. 5	0	NW.	1	C. K.	2	Nov. 6	0	SE.	1	K.	10
	3	NW.	2	Clear	0		3	NW.	1	Clear	0		3	S.	1	N.	10
	6	W. NW.	1	Clear	0		6	NW.	1	Fog			6	S.	1	K.	10
	9	NW.	1	C.	2		9	NW.	1	C. K.	2		9	S.	1	Mist	10
	Noon	NW.	2	C. K.	4		Noon						Noon	S.	1	K.	10
	3	NW.	2	C. K.	4		3	SW.	1	C. K.	6		3	S.	1	N.	10
	6	NE.	1	C. K.	3		6	SE.	1	K.	10		6	E. SE.	1	N.	10
	9	NW.	1	Clear	0		9	SE.	1	C. K.	9		9	E.	1	N.	10
Nov. 7	0	NE.	1	N.	10	Nov. 8	0	W.	2	C. K.	2	Nov. 9	0	NW.	1	C.	2
	3	NE.	1	N.	10		3	W.	4	C. K.	2		3	NW.	1	Clear	0
	6	NW.	1	N.	10		6	W.	3	C. K.	2		6	NW.	1	C.	1
	9	W. NW.	3	C. K.	6		9	W.	3	C. K.	2		9	NW.	2	C. K.	7
	Noon	W.	3	C.	3		Noon	W. NW.	4	C. K.	6		Noon	NW.	1	C. K.	9
	3	SW.	2	C. K.	5		3	NW.	2	C. K.	6		3	NW.	1	C. K.	8
	6	W.	2	C. K.	2		6	NW.	1	C. S.	3		6	NW.	1	S.	1
	9	W.	3	C. K.	2		9	NW.	1	C. S.	3		9	W. NW.	1	C.	1
Nov. 10	0	NW.	1	Clear	0	Nov. 11	0	E.	1	C. K.	3	Nov. 12	0	E.	1	N.	10
	3	W. NW.	1	Clear	0		3	E.	1	C. K.	8		3	E.	1	N.	10
	6	W. NW.	1	C. S.	2		6	E.	1	C. K.	10		6	SE.	2	N.	10
	9	N.	1	Haze			9	SE.	1	C. K.	10		9	W.	1	N.	10
	Noon	SE.	1	Haze			Noon	S.	1	C. K.	10		Noon	Calm	0	N.	10
	3	SE.	1	C.	3		3	SE.	1	C. K.	10		3	SW.	2	N.	10
	6	S. SE.	1	C. K.	8		6	E.	1	K.	10		6	SW.	1	C. K.	4
	9	E.	1	C. K.	1		9	E. NE.	1	N.	10		9	NW.	4	C. K. S.	1

REMARKS.

November 3. Light rain in the morning; amount, 0.042 inch.
6. Rain during the day; amount, 0.730 inch.
7. Rain during the morning; amount, 0.640 inch.
8. Lunar halo at 9^h p. m.
10. Lunar halo at 6^h p. m.; the aurora borealis visible at 9^h p. m.
11. Rain from 9^h p. m. to 4^h p. m. on the 12th; amount, 0.392 inch.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872. Nov. 13	0	NW.	2	C. K.	9
	3	NW.	2	C. K.	9
	6	NW.	1	C. K. S.	9
	9	NW.	1	C. K. S.	9
	Noon	E.	1	C. K.	9
	3	E.	1	C. K.	8
	6	E.	1	C. K.	8
	9	E.	1	K.	10
1872. Nov. 14	0	NE.	2	N.	10
	3	NE.	1	N.	10
	6	E.	1	K.	10
	9	NW.	1	Mist	10
	Noon	W. NW.	1	K.	10
	3	W. NW.	1	C. K.	10
	6	W.	1	C. K.	9
	9	W.	1	C. K.	9
1872. Nov. 15	0	NW.	3	C. K.	10
	3	NW.	3	C.	3
	6	NW.	2	Clear	0
	9	W.	2	C. K.	3
	Noon	W.	3	C. K.	4
	3	W. NW.	2	C. K.	4
	6	NW.	1	C. K. S.	6
	9	N. by W.	1	C. K.	4
Nov. 16	0	W. NW.	1	C. K.	8
	3	W.	1	C. K.	10
	6	W. NW.	1	C. K.	10
	9	W. NW.	1	C. K. S.	10
	Noon	NW.	1	C. K.	10
	3	NW.	1	Snow	10
	6	NW.	2	C. K.	9
	9	W.	1	C. K.	8
Nov. 17	0	W.	3	C. K.	6
	3	W. NW.	3	C. K.	3
	6	W.	3	Clear	0
	9	NW.	3	Clear	0
	Noon	NW.	2	C. K.	1
	3	NW.	1	C. K.	9
	6	NW.	1	C. S.	2
	9	NW.	1	C. K.	8
Nov. 18	0	W.	1	C. K.	8
	3	W.	1	C. K.	9
	6	W.	1	C. K. S.	10
	9	W.	1	C. K.	9
	Noon	S.	2	C. K.	9
	3	SW.	1	C. K.	8
	6	SW.	1	C.	1
	9	W. NW.	1	Clear	0
Nov. 19	0	NW.	1	Clear	0
	3	NW.	1	Clear	0
	6	NW.	1	Clear	0
	9	W.	1	Clear	0
	Noon	S.	2	Clear	0
	3	S.	2	Clear	0
	6	SE.	1	K.	10
	9	S.	1	K.	10
Nov. 20	0	NW.	1	C. K.	5
	3	W.	1	C. K.	3
	6	W.	1	K.	10
	9	W. NW.	2	Haze	
	Noon	NW.	3	C. K.	7
	3	NW.	3	C. K.	2
	6	NW.	2	Clear	0
	9	NW.	1	Clear	0
Nov. 21	0	NW.	1	Clear	0
	3	NW.	1	Clear	0
	6	NW.	1	Clear	0
	9	W.	1	Haze	
	Noon	SE.	2	C. K.	4
	3	S.	2	C. K.	7
	6	S.	2	C. K.	4
	9	SE.	1	C. K.	10
Nov. 22	0	S.	1	C. K.	8
	3	SW.	1	C. K.	7
	6	N. by W.	1	C. K.	9
	9	NW.	1	K.	10
	Noon	NW.	1	K.	10
	3	NW.	1	C. S.	4
	6	NW.	1	K.	10
	9	W.	1	K.	10
Nov. 23	0	NW.	3	K.	10
	3	NW.	4	C. K.	10
	6	NW.	2	C. K.	9
	9	NW.	2	Clear	0
	Noon	W. NW.	2	C.	5
	3	SW.	1	C. K.	6
	6	W.	1	Clear	0
	9	SE.	1	Clear	0
Nov. 24	0	SE.	1	Haze	
	3	SW.	1	Haze	
	6	SW.	1	C. S.	5
	9	W.	1	Haze	
	Noon	S.	1	Haze	
	3	S.	2	Clear	0
	6	S.	1	C. S.	2
	9	S.	1	Clear	0
Nov. 25	0	SW.	1	Haze	
	3	S. SE.	1	Haze	
	6	S.	1	Haze	
	9	SW.	1	C. K.	8
	Noon	S. SE.	1	C. K.	6
	3	SW.	1	C. K.	10
	6	SW.	1	K.	10
	9	SW.	1	N.	10
Nov. 26	0	SE.	1	N.	10
	3	E.	1	N.	10
	6	E.	2	N.	10
	9	E. SE.	1	N.	10
	Noon	N. NE.	1	N.	10
	3	N. NE.	1	N.	10
	6	NW.	2	K.	10
	9	NW.	2	C.	1
Nov. 27	0	SW.	1	Clear	0
	3	SW.	1	Clear	0
	6	S.	1	Clear	0
	9	NW.	1	Haze	
	Noon	S.	1	C. K.	5
	3	S. SE.	1	C. K.	8
	6	S. SW.	1	C. K. S.	3
	9	NW.	2	C. S.	2

REMARKS.

November 13. A lunar halo at $0^h\ 10^m$ a. m.
Rain at $9^h\ 50^m$ p. m.; amount, 0.610 inch.
15. Thirteen meteors were counted by one observer from 3^h to 5^h a. m.
16. Light snow at $1^h\ 40^m$ p. m.
17. A lunar halo during the evening.
21. Light snow at $1^h\ 20^m$ p. m.
25. Rain from $8^h\ 40^m$ p. m. to 3^h p. m. on the 26th; amount, 0.300 inch.

Hosted by Google

Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force.					Direction.	Force.					Direction.	Force.		
1872. Nov. 28	0	NW.	1	C. S.	1	1872. Nov. 29	0	S.	1	C. K.	10	1872. Nov. 30	0	NW.	2	Clear	0
	3	NW.	1	Clear	0		3	NW.	3	K.	10		3	NW.	1	Clear	0
	6	NW.	1	C. S.	1		6	NW.	3	K.	10		6	NW.	1	Clear	0
	9	NE.	1	S.	1		9	NW.	3	C. K.	10		9	W.	3	C. K.	2
	Noon	E.	1	C.	2		Noon	NW.	4	C. K.	6		Noon	W.	3	Clear	0
	3	E.	1	C. K.	6		3	NW.	4	C. K.	2		3	W.	3	Clear	0
	6	E.	1	S.	1		6	NW.	4	Clear	0		6	NW.	2	Clear	0
	9	S.	2	C. K.	3		9	NW.	3	Clear	0		9	NW.	2	Clear	0
Dec. 1	0	NW.	2	Clear	0	Dec. 2	0	S.	2	C. K.	8	Dec. 3	0	W. NW.	3	Clear	0
	3	NW.	2	Clear	0		3	N.	1	C. K.	3		3	W. NW.	2	Clear	0
	6	W.	2	C. S.	2		6	S. SW.	1	C. K.	3		6	W.	2	Clear	0
	9	SW.	2	C. K.	7		9	SW.	1	C. K.	3		9	W.	1	C. K.	9
	Noon	S.	3	C. K.	6		oon	SW.	1	C.	1		Noon	NW.	3	C. K.	3
	3	S.	1	K.	10		3	S.	1	C. K.	7		3	W. NW.	3	C. K.	1
	6	S.	1	K.	10		6	SW.	2	C. K.	4		6	W.	1	Clear	0
	9	S.	3	Hail	10		9	W.	5	C. S.	2		9	W.	1	Clear	0
Dec. 4	0	NW.	1	Clear	0	Dec. 5	0	NW.	2	Clear	0	Dec. 6	0	W.	1	Haze	
	3	NW.	1	Clear	0		3	NW.	1	C. K.	5		3	W.	1	Haze	
	6	W.	1	S.	1		6	NW.	1	C. K.	9		6	W.	1	S.	1
	9	NW.	2	C. S.	2		9	S. SW.	1	C. K.	10		9	S.	1	Haze	
	Noon	NW.	2	C. S.	2		Noon	W.	1	C. K.	10		Noon	SE.	1	Haze	
	3	NW.	1	S.	1		3	S.	1	C. K.	10		3	S. SE.	1	Haze	
	6	NW.	1	Clear	0		6	W.	1	S.	1		6	S.	1	C. S.	3
	9	NW.	1	Clear	0		9	W.	1	Haze			9	NE.	2	C. K.	10
Dec. 7	0	NE.	1	Haze		Dec. 8	0	E.	1	Haze		Dec. 9	0	W. NW.	2	C. K.	10
	3	E.	1	C. K.	6		3	E.	1	K.	10		3	W.	1	Clear	0
	6	SE.	1	C. K.	5		6	S.	1	K.	10		6	NW.	3	C. K.	8
	9	NW.	1	C. K.	3		9	S. by W.	1	K.	10		9	W. NW.	3	C. K.	4
	Noon	SE.	1	Haze			Noon	S. by W.	1	C. K.	10		Noon	NW.	5	C. K.	6
	3	S. SW.	1	C. K.	5		3	W.	1	C. K.	9		3	W. NW.	5	C. K.	8
	6	E.	1	C. K.	3		6	SW.	1	C. K.	6		6	NW.	4	C. K. S.	2
	9	E.	1	C. K.	3		9	N.	1	K.	10		9	NW.	4	Clear	0
Dec. 10	0	NW.	4	C. S.	2	Dec. 11	0	W.	1	C. K.	6	Dec. 12	0	N.	1	C. S.	6
	3	W. NW.	4	C. K.	2		3	W.	2	K.	10		3	N.	1	C. S.	4
	6	NW.	4	C. S.	1		6	W.	2	K.	10		6	N.	1	C. K. S.	6
	9	NW.	4	C.	2		9	W. NW.	1	C. K.	10		9	N. NW.	2	C. K.	7
	Noon	NW.	4	Clear	0		Noon	W.	1	C. K.	6		Noon	N.	3	C. K.	4
	3	NW.	3	C. S.	3		3	W. NW.	1	C.	5		3	NW.	3	C. K.	9
	6	NW.	3	C. K.	4		6	NW.	1	K.	10		6	NW.	3	Clear	0
	9	NW.	1	C. K.	5		9	N.	1	C. K.	10		9	NW.	2	Clear	0

REMARKS.

November 28. Seven meteors were counted from 3^h to 3^h 30^m a. m.
December 1. Light snow and rain at intervals during the day.
2. Shower at 7^h 15^m p. m.; amount of rain, 0.034 inch.
8. Light rain at 7^h 45^m p. m.

Hosted by Google

Day.	Hour.	WIND. Direction.	WIND. Force.	Weather.	Portion cloudy.
1872, Dec. 13	0	N. NW.	2	C. K.	8
	3	NW.	2	C. S.	1
	6	NW.	1	C. S.	7
	9	SW.	1	C. K.	7
	Noon	SW.	2	C. K.	6
	3	SW.	1	C.	2
	6	SW.	1	C. K.	2
	9	SW.	2	Clear	0
1872. Dec. 14	0	S.	1	C.	2
	3	SW.	1	C. K.	5
	6	S. SW.	1	C. K.	5
	9	S. by W.	1	C. K.	7
	Noon	SW.	1	C. K.	4
	3	SW.	1	C. K.	2
	6	S.	1	Clear	0
	9	S.	1	C. K.	4
1872. Dec. 15	0	S.	1	C. K.	8
	3	S.	1	C. K.	10
	6	SW.	1	N.	10
	9	SW.	1	C. K.	9
	Noon	W.	1	C. K.	10
	3	W.	3	C. K.	9
	6	W.	1	C. K.	9
	9	NW.	1	C.	2
Dec. 16	0	NW.	1	C. K.	10
	3	NW.	1	C. K.	8
	6	NW.	1	C. K.	10
	9	N. by W.	1	K.	10
	Noon	W.	1	K.	10
	3	SW.	1	K.	10
	6	SW.	1	Fog	
	9	W. NW.	1	Fog	
Dec. 17	0	W.	1	C. K.	8
	3	W.	1	C. K.	3
	6	W.	3	C. K.	9
	9	N. NW.	2	C. K.	9
	Noon	N. NW.	1	C. K.	8
	3	NW.	1	C.	4
	6	NW.	1	Haze	
	9	NE.	1	K.	10
Dec. 18	0	NW.	1	K.	10
	3	E.	1	Snow	10
	6	E.	1	Sleet	10
	9	E.	1	N.	10
	Noon	N.	1	K.	10
	3	E.	1	K.	10
	6	Calm	0	K.	10
	9	NW.	2	K.	10
Dec. 19	0	NW.	3	K.	10
	3	NW.	2	C. K.	7
	6	NW.	1	C. K.	8
	9	NW.	1	C. K.	10
	Noon	NE.	1	C. K.	10
	3	E.	1	C. K.	10
	6	E.	1	K.	10
	9	E. NE.	1	Snow	10
Dec. 20	0	E.	1	Sleet	10
	3	E.	1	N.	10
	6	SW.	1	N.	10
	9	SW.	1	K.	10
	Noon	W.	1	K.	10
	3	W.	1	K.	10
	6	W.	1	N.	10
	9	NW.	1	K.	10
Dec. 21	0	NW.	3	K.	10
	3	NW.	2	C. K.	10
	6	NW.	2	C. K. S.	3
	9	NW.	1	Haze	
	Noon	NE.	1	C. K.	5
	3	SE.	1	C. K.	8
	6	E.	2	K.	10
	9	SE.	2	K.	10
Dec. 22	0	NW.	3	Snow	10
	3	NW.	5	Clear	0
	6	NW.	4	Clear	0
	9	NW.	3	Clear	0
	Noon	NW.	3	Clear	0
	3	W.	2	C. S.	2
	6	SE.	1	C. K.	3
	9	SE.	1	C. K.	5
Dec. 23	0	SE.	1	C. K.	8
	3	S.	2	C. K.	9
	6	S.	3	C. K.	9
	9	SW.	2	C. K.	6
	Noon	S.	1	C. K.	7
	3	W. NW.	1	C. K.	2
	6	NW.	1	Clear	0
	9	NW.	3	Clear	0
Dec. 24	0	NW.	3	C.	3
	3	NW.	3	C. K.	10
	6	NW.	3	C. K.	9
	9	NW.	2	C. K.	10
	Noon	W. NW.	1	C. K.	9
	3	NW.	2	C. K.	9
	6	NW.	1	C. K. S.	9
	9	NW.	2	Haze	
Dec. 25	0	NW.	2	Clear	0
	3	NW.	1	C. K.	6
	6	N. NE.	1	K.	10
	9	NE.	2	K.	10
	Noon	NE.	1	K.	10
	3	NE.	1	Snow	10
	6	N.	1	Snow	10
	9	NE.	1	Snow	10
Dec. 26	0	NE.	3	Snow	10
	3	NE.	3	Snow	10
	6	N. NE.	2	Snow	10
	9	NW.	2	Snow	10
	Noon	N. NW.	3	Snow	10
	3	N. NW.	3	Snow	10
	6	N. NW.	2	Snow	10
	9	N. NW.	2	Snow	10
Dec. 27	0	NW.	2	Snow	10
	3	NW.	3	K.	10
	6	NW.	4	K.	10
	9	NW.	3	K.	10
	Noon	NW.	3	C. K.	4
	3	NW.	3	Clear	0
	6	W. NW.	2	C. S.	1
	9	W. NW.	2	C.	3

REMARKS.

December 15. Light rain at $5^h\ 40^m$ a. m.

18. Snow and sleet at 3^h a. m.; depth, 0.375 inch.

19. Began to snow at $6^h\ 25^m$ p. m., changed to rain at midnight, and continued until 6^h p. m. on the 20th. Depth of snow, 1.0 inch; amount of rain and melted snow, 1.400 inches.

25. Began to snow at $0^h\ 15^m$ p. m. and continued until 1 a. m. on the 27th. Depth of snow, 3.75 inches; melted snow, 0.414 inch.

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Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.	Day.	Hour.	WIND.		Weather.	Portion cloudy.
		Direction.	Force.					Direction.	Force.					Direction.	Force.		
1872.						1872.						1872.					
Dec. 28	0	NW.	1	Clear	0	Dec. 29	0	SW.	1	K.	10	Dec. 30	0	SW.	1	K.	10
	3	NW.	1	Clear	0		3	SE.	1	K.	10		3	SE.	1	K.	10
	6	W. by N.	2	Clear	0		6	W.	1	K.	10		6	NE.	1	K.	10
	9	W.	3	C. K.	9		9	W.	1	C. K.	10		9	E.	1	C. K.	9
	Noon	W.	1	C. K.	9		Noon	S. by E.	1	C. K.	2		Noon	S.	1	C. K.	9
	3	W. NW.	2	C. K.	6		3	S.	1	C. K. S.	10		3	S. SE.	1	C. K.	9
	6	NW.	1	S.	1		6	S.	1	K.	10		6	SE.	2	K.	10
	9	SW.	1	K.	10		9	SW.	1	K.	10		9	SE.	2	Snow	10
Dec. 31	0	SE.	2	K.	10												
	3	SE.	1	K.	10												
	6	SE.	1	N.	10												
	9	S.	1	C. K.	10												
	Noon	W. NW.	1	C. K.	10												
	3	NW.	1	K.	10												
	6	NW.	1	K.	10												
	9	NW.	1	K.	10												

REMARKS.

December 31. Light rain at 6^{h} a. m.; amount, 0.058 inch.

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METEOROLOGICAL OBSERVATIONS.

MEAN MONTHLY AND ANNUAL RESULTS.

1872.

45——72

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TABLE I.

Monthly Means of Barometric Pressure.

Date.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	in.	in.	in.	in.	in.	in.	in.	in.
January . .	29.972	29.974	29.991	30.030	29.998	29.956	29.982	29.987
February . .	29.928	29.917	29.938	29.964	29.901	29.894	29.903	29.921
March . . .	29.959	29.943	29.953	29.982	29.949	29.908	29.916	29.947
April. . . .	29.939	29.943	29.984	30.013	29.983	29.926	29.913	29.950
May	29.891	29.895	29.918	29.931	29.894	29.849	29.845	29.885
June	29.884	29.885	29.903	29.914	29.893	29.852	29.845	29.878
July	29.881	29.879	29.899	29.914	29.897	29.861	29.848	29.876
August. . .	29.945	29.940	29.955	29.976	29.957	29.913	29.906	29.945
September .	29.951	29.948	29.966	29.988	29.966	29.928	29.922	29.950
October . .	29.998	30.001	30.012	30.034	30.005	29.975	29.987	30.010
November .	30.014	30.016	30.022	30.044	29.995	29.976	30.000	30.014
December .	30.077	30.086	30.084	30.122	30.071	30.050	30.064	30.083
Annual means.	29.953	29.952	29.969	29.993	29.959	29.924	29.928	29.954

TABLE II.

Monthly Means of Dry Thermometer.

Date.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
January . .	29.2	28.0	26.3	27.4	33.9	36.1	32.4	29.7
February . .	29.5	27.9	26.6	30.0	36.8	39.6	35.0	31.7
March . . .	30.7	29.4	28.4	32.9	38.5	40.8	37.5	33.2
April. . . .	49.2	46.6	44.6	51.8	59.4	63.2	60.2	53.8
May	59.4	55.8	55.4	65.6	73.5	76.1	71.6	63.9
June	67.2	64.7	64.4	73.2	80.4	82.5	78.4	70.9
July	74.0	72.2	71.6	80.0	87.8	90.0	85.6	74.2
August. . .	73.1	70.7	70.2	76.8	85.8	88.8	82.3	75.3
September .	63.2	60.6	59.7	66.6	76.2	78.0	74.5	65.7
October . .	50.7	48.3	47.3	52.8	61.0	63.0	56.3	52.9
November .	37.1	35.0	34.8	39.5	45.1	47.0	41.8	38.5
December .	25.5	24.3	23.8	26.1	31.8	33.5	29.8	27.5
Annual means.	49.1	46.9	46.1	51.9	59.2	61.6	57.1	51.4

TABLE III.

Monthly Means of Wet Thermometer.

Date.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
January . .	28.9	27.3	26.2	27.1	32.2	33.5	31.2	29.2
February . .	28.9	27.3	26.2	28.9	34.0	35.8	33.1	30.7
March . . .	30.2	29.3	28.4	31.8	35.0	37.0	35.0	32.4
April. . . .	46.5	44.5	43.0	47.6	52.0	54.3	53.0	49.5
May	55.8	54.0	53.5	59.7	64.0	65.3	63.3	58.8
June	64.8	63.4	63.3	68.7	71.9	73.0	71.1	67.1
July	71.3	70.2	70.1	73.6	75.8	77.4	76.1	73.0
August. . .	71.3	69.8	69.5	72.6	75.6	77.2	75.2	72.0
September .	61.5	59.9	59.3	63.8	68.5	69.3	66.9	63.5
October . .	49.2	47.6	46.9	51.8	55.4	56.5	53.6	50.9
November .	36.5	35.4	34.4	37.8	41.5	42.4	39.6	37.3
December .	25.5	24.2	23.9	25.4	29.9	31.4	29.6	27.2
Annual means.	47.5	46.1	45.4	49.1	53.0	54.4	52.3	49.3

TABLE IV.

Monthly Means of Sun Thermometer.

Date.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.	°	°	°	°	°	°	°	°
January . .	27.1	25.6	24.3	38.1	72.2	59.8	29.4	27.8
February . .	27.2	25.5	24.5	56.8	80.5	74.2	32.1	29.6
March . . .	28.9	27.7	26.8	67.7	85.7	77.4	45.5	31.7
April. . . .	45.1	43.0	43.3	91.1	106.0	103.0	61.4	48.9
May	53.7	50.7	55.5	110.7	125.7	116.1	72.9	57.3
June	62.6	60.8	65.4	115.1	127.2	121.9	82.7	65.6
July	70.1	68.8	73.0	120.1	135.0	126.9	94.5	73.0
August. . .	69.6	67.6	69.2	116.5	133.6	130.2	86.2	72.0
September .	58.3	56.4	57.4	103.8	124.6	114.4	66.3	61.0
October . .	47.3	45.0	44.5	86.7	99.5	83.0	52.7	49.6
November .	34.4	33.1	31.9	68.7	79.6	57.7	38.8	34.9
December .	23.4	22.2	21.9	44.6	72.0	44.0	27.6	25.2
Annual means.	45.6	43.9	44.8	85.0	103.5	92.4	57.5	48.0

TABLE V.

Amount of Rain and Snow in 1872.

Month.	Rain and Melted Snow.	Depth of Snow.
	in.	in.
January	0.996	3.00
February	1.678	5.50
March	3.295	10.50
April	2.028	
May	1.574	
June	3.872	
July	0.838	
August	6.133	
September	4.304	
October	3.982	
November	2.716	
December	1.948	5.12
Total	33.364	24.12

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TABLE VI.

Showing the number of times that the wind blew from the NORTH *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January	4	2	2	5	4	3	2	1
February	2	1	2	8	8	9	5	4
March	1	1	7	6	3	1	2	0
April	4	1	3	2	1	1	3	2
May	1	2	2	2	3	1	1	5
June	3	2	2	2	1	2	3	4
July	1	0	3	2	3	2	3	1
August	3	2	0	1	1	1	1	5
September	2	2	6	2	1	2	2	2
October	2	2	4	3	0	1	3	2
November	0	0	1	1	1	1	0	1
December	2	2	3	3	5	1	2	3
Total	25	17	35	37	31	25	27	30

Showing the number of times that the wind blew from the NORTHEAST *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January	2	4	3	1	1	2	4	2
February	4	6	5	3	2	3	3	3
March	3	3	3	2	1	3	2	2
April	0	2	2	4	0	0	1	2
May	0	0	1	2	2	1	0	0
June	0	2	1	1	1	0	0	0
July	1	0	0	4	0	0	0	0
August	1	1	2	3	1	2	2	1
September	1	2	0	2	1	1	5	2
October	2	5	3	5	4	3	5	2
November	2	2	0	1	0	0	2	0
December	2	1	1	1	3	1	0	3
Total	18	28	21	29	16	16	24	17

Showing the number of times that the wind blew from the EAST *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January	1	0	1	1	1	0	0	1
February	0	0	0	1	2	2	4	2
March	2	0	1	3	1	1	1	4
April	3	3	2	0	1	2	2	0
May	0	0	0	0	1	1	0	0
June	1	0	0	2	1	1	2	1
July	0	0	0	0	1	0	1	1
August	3	2	2	3	1	0	2	2
September	0	0	1	1	1	1	0	1
October	4	2	0	1	2	2	2	4
November	2	3	3	2	2	2	5	5
December	2	4	1	2	0	2	3	2
Total	18	14	11	16	14	14	22	23

Showing the number of times that the wind blew from the SOUTHEAST *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3 .	6h.	9h.
1872.								
January	1	0	0	0	2	3	2	1
February	2	0	0	0	0	2	0	3
March	3	3	0	0	2	4	2	2
April	2	1	0	2	3	2	3	4
May	6	5	2	3	2	1	2	3
June	2	1	1	2	2	4	2	5
July	3	0	0	0	1	2	2	4
August	3	1	1	2	2	6	4	2
September	2	3	1	1	3	4	5	4
October	0	0	1	0	2	2	4	3
November	5	0	1	1	2	2	2	3
December	2	3	2	0	2	1	2	3
Total	31	17	9	11	23	33	30	37

Showing the number of times that the wind blew from the SOUTH *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January	2	0	1	1	2	4	4	2
February	2	1	2	3	3	2	3	3
March	2	4	5	3	3	1	6	3
April	6	5	4	8	8	10	8	5
May	4	2	3	6	8	8	9	9
June	5	1	0	6	10	7	11	3
July	4	5	2	6	8	10	6	5
August	5	5	5	0	10	11	8	9
September	4	2	2	4	6	7	7	3
October	6	3	4	4	7	8	5	5
November	1	2	3	1	7	6	3	3
December	3	2	4	6	5	7	4	2
Total	44	32	35	48	77	81	74	52

Showing the number of times that the wind blew from the SOUTHWEST *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January	4	6	5	2	2	3	4	8
February	1	1	1	0	0	2	1	1
March	1	2	0	2	5	2	0	0
April	4	4	3	0	3	5	3	3
May	2	2	5	6	2	2	3	1
June	6	6	7	5	5	7	4	6
July	10	7	8	4	2	4	8	7
August	7	6	5	9	3	0	3	2
September	4	3	1	1	0	2	4	6
October	2	3	3	6	3	3	2	2
November	2	4	1	2	1	6	3	1
December	2	1	2	3	4	2	4	3
Total	45	45	41	40	30	38	39	40

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TABLE VI—Continued.

Showing the number of times that the wind blew from the WEST *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	8	9	8	12	9	12	8	5
February . . .	2	5	4	5	7	5	5	3
March. . . .	2	2	6	4	8	7	7	6
April	5	5	6	6	8	6	5	7
May	4	5	9	6	8	13	9	7
June	5	7	8	6	7	4	4	6
July	1	8	10	10	9	5	6	8
August . . .	4	5	6	4	6	4	5	5
September . .	7	8	7	8	12	3	2	2
October . . .	6	4	6	2	7	5	7	6
November . .	5	7	9	12	7	4	3	5
December . .	5	6	8	6	6	10	5	5
Total . . .	54	71	87	81	94	78	66	65

Showing the number of times that the wind blew from the NORTHWEST *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	12	12	13	11	12	7	9	13
February . . .	17	15	15	9	6	5	8	10
March. . . .	16	17	10	11	6	11	11	14
April	6	9	10	7	6	4	5	7
May	14	15	10	6	6	5	7	6
June	8	11	11	5	3	5	4	5
July	11	11	8	5	7	8	4	5
August . . .	5	9	10	9	7	7	5	6
September . .	10	10	11	10	6	7	6	7
October . . .	8	12	10	10	6	7	3	7
November . .	13	12	12	11	8	9	12	11
December . .	13	12	10	10	6	7	10	10
Total . . .	133	145	130	104	79	82	84	101

Showing the number of times that it was CALM *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	0	0	0	0	0	0	0	0
February . . .	0	0	0	0	0	0	0	0
March. . . .	0	0	0	0	1	1	0	0
April	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0
July	0	0	0	0	1	1	0	0
August . . .	0	0	0	0	0	0	0	0
September . .	0	0	1	0	0	0	0	2
October . . .	0	0	0	0	0	0	0	0
November . .	0	0	0	0	1	0	0	0
December . .	0	0	0	0	0	0	1	0
Total . . .	0	0	1	0	3	2	1	2

TABLE VII.

Showing the number of times that it was CLEAR *at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3 .	6h.	9h.
1872.								
January . . .	6	8	8	6	6	4	4	9
February . . .	9	11	9	3	3	0	0	4
March. . . .	11	12	5	4	6	6	4	10
April	8	10	5	4	3	3	3	11
May	6	8	6	5	2	1	3	6
June	7	6	5	5	1	1	2	2
July	8	5	5	2	1	1	1	5
August . . .	7	7	5	4	2	3	1	9
September . .	13	6	6	2	1	3	6	10
October . . .	10	13	5	8	3	3	4	8
November . .	7	10	7	4	2	2	5	8
December . .	6	6	3	1	2	1	5	6
Total . . .	98	102	69	48	32	28	38	88

Showing the number of times that it was HAZY *at the hours of observation.*

Month.	0.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	1	1	1	2	4	0	0	0
February . . .	1	1	0	5	3	2	1	2
March. . . .	0	0	0	3	1	0	0	2
April	2	1	4	6	6	4	1	0
May	4	5	2	7	8	6	4	4
June	0	1	1	1	1	0	0	0
July	0	0	0	0	0	0	0	0
August . . .	0	0	2	1	0	0	0	0
September . .	0	1	5	3	5	3	2	0
October . . .	2	1	2	0	1	0	0	1
November . .	2	2	1	5	2	0	0	0
December . .	3	1	0	2	2	1	1	2
Total . . .	15	14	18	35	33	16	9	11

Showing the number of times that CIRRUS *clouds prevailed at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	2	2	0	2	1	2	0	0
February . . .	0	1	0	2	2	6	1	3
March. . . .	0	0	0	5	2	2	0	1
April	2	2	3	2	4	2	4	1
May	3	2	1	3	2	3	1	1
June	3	3	5	2	2	2	2	4
July	5	2	2	5	1	0	1	3
August . . .	2	1	0	3	1	1	2	1
September . .	3	3	1	4	5	3	1	1
October . . .	2	2	1	2	2	0	1	3
November . .	1	1	1	1	3	2	0	3
December . .	2	0	0	1	1	3	0	2
Total . . .	25	19	14	32	26	26	13	23

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TABLE VII—Continued.

Showing the number of times that CIRRO-CUMULUS *clouds prevailed at the hours of observation.*

Month.	0h.	3 .	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	11	13	11	11	17	17	14	11
February. . .	13	8	8	10	14	12	11	14
March . . .	7	9	12	6	12	11	15	10
April. . . .	10	6	8	13	12	16	15	9
May	12	13	21	16	18	19	18	12
June	16	9	10	20	23	24	24	15
July	16	20	21	21	29	28	28	17
August . . .	15	15	18	20	25	25	19	10
September . .	7	16	13	18	17	13	15	10
October . . .	11	6	9	16	20	21	13	11
November . .	11	10	6	11	16	21	10	9
December . .	8	13	10	19	20	15	7	6
Total . . .	137	138	147	181	223	222	189	134

Showing the number of times that CIRRO-STRATUS *clouds prevailed at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	0	0	1	2	1	1	3	0
February. . .	0	1	3	1	1	0	2	1
March . . .	0	0	0	2	2	0	0	2
April	0	1	1	1	1	0	0	0
May	0	0	0	0	0	0	0	1
June	1	2	3	0	0	1	1	4
July	0	0	1	1	1	0	1	1
August . . .	2	3	2	2	1	0	2	2
September . .	0	0	0	0	1	3	0	1
October . . .	0	0	3	0	0	0	2	0
November . .	1	0	3	0	0	1	3	2
December . .	2	2	3	1	1	2	2	1
Total . . .	6	9	20	10	9	8	16	15

Showing the number of times that CUMULUS *clouds prevailed at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	7	4	5	3	1	3	2	6
February. . .	1	3	5	1	1	2	4	1
March . . .	9	5	5	3	2	7	3	5
April	2	2	1	0	2	3	3	2
May	4	2	2	1	1	0	1	4
June	1	2	3	0	0	3	1	1
July	1	1	2	1	0	1	0	1
August . . .	3	3	2	0	0	0	1	3
September . .	4	1	0	0	1	1	2	6
October . . .	5	4	6	3	4	3	1	3
November . .	2	1	5	2	3	0	6	3
December . .	6	6	5	5	4	4	8	8
Total . . .	45	34	41	19	19	27	32	43

Showing the number of times that CUMULO-STRATUS *clouds prevailed at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	1	0	0	1	0	1	2	0
February . . .	0	0	1	1	0	1	3	0
March . . .	0	0	2	0	0	1	4	0
April	0	1	4	0	0	0	2	1
May	0	1	0	0	0	0	0	1
June	1	4	1	0	0	0	1	1
July	0	1	0	1	0	0	0	3
August . . .	0	0	0	0	0	0	1	1
September . .	1	0	2	1	0	0	2	1
October . . .	0	0	3	0	0	0	5	1
November . .	0	0	2	2	0	0	1	1
December . .	0	0	2	0	0	1	2	0
Total . . .	3	7	17	6	0	4	23	10

Showing the number of times that STRATUS *clouds prevailed at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	0	0	1	0	1	0	2	0
February . . .	0	0	0	0	0	0	1	0
March . . .	0	0	0	0	1	0	0	0
April	1	0	0	0	1	1	0	3
May	0	0	0	0	0	0	0	0
June	0	1	0	0	0	0	0	1
July	0	0	0	0	0	0	0	1
August . . .	0	0	0	0	0	0	2	1
September . .	0	0	0	0	0	0	0	0
October . . .	0	0	0	0	0	0	2	1
November . .	0	0	1	1	0	0	2	0
December . .	0	0	2	0	0	1	2	0
Total . . .	1	1	4	1	3	2	11	7

Showing the number of times that NIMBUS *clouds prevailed at the hours of observation.*

Month.	0h.	3h.	6h.	9h.	Noon.	3h.	6h.	9h.
1872.								
January . . .	4	4	5	6	5	3	4	5
February. . .	3	2	1	4	4	4	4	2
March . . .	4	5	7	8	5	4	4	3
April	5	6	4	4	1	1	2	3
May	2	1	0	0	0	2	3	2
June	1	2	3	2	3	0	0	2
July	2	2	0	0	0	0	0	0
August . . .	2	2	2	1	2	1	3	4
September . .	2	3	4	2	1	3	2	0
October . . .	2	5	4	2	1	2	3	3
November . .	5	6	4	4	2	4	2	4
December . .	4	3	5	2	2	3	4	6
Total . . .	36	41	39	35	26	27	31	34

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METEORS.

1872.

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METEORS OBSERVED IN 1872.

Owing to a want of observers, no attempt was made to maintain a series of continuous observations during the year. Arrangements were made to observe the August and November showers, and a record was made of all observations of sporadic meteors.

AUGUST METEORS.

Thirteen meteors were counted from 1^h to 2^h a. m. in the vicinity of Perseus August 10. A storm in the early portion of the evening did not clear off until 3^h 10^m a. m. on the 11th, when the watchman counted thirty-eight (38) meteors between 3^h 10^m and 4^h a. m. Most of these meteors were small, with short tracks, and moving swiftly. It clouded up again at 4^h a. m.

August 11, a thunderstorm in the afternoon; cleared off at 9^h 30^m p. m.

Between 9^h 35^m and 9^h 45^m Professor Eastman counted four meteors unconformable to the usual radiant.

At 9^h 45^m Mr. Cahill joined Professor Eastman, and from—

9^h	45^m	to	10^h	0^m	they counted	8	meteors.
10	0	to	10	15	"	8	"
10	15	to	10	30	"	4	"
10	30	to	10	45	"	2	"
10	45	to	11	0	"	1	"
Total in one hour and twenty-five minutes,						27	"

Only *six* of these appeared to come from the August radiant. All but *one* were small, less than the third magnitude.

At 9^h 57^m 30^s, Washington mean time, a brilliant meteor of the second magnitude appeared near the cluster of stars in the sword-handle of Perseus, and moved more slowly than the ordinary August meteors, to a point 7° east of Polaris. It had an orange-colored train, which disappeared with the meteor.

This meteor was yellowish-red, while all the others were white. At no time was the sky, in the vicinity of the radiant, free from light cirrus-clouds. At 10^h 30^m the clouds gathered in the south, north, and northeast, and at 11^h they were too dense to permit further observations.

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NOVEMBER METEORS.

A rain-storm on the morning of the 14th prevented any observations of the usual November shower.

On the evening of November 27 several meteors were seen before 6h p. m. by officers on their way to the Observatory.

The watchman, Mr. Horrigan, observed alone until 8h p. m., with the following results:

Time.		Number of Meteors.
From—	To—	
h. m.	h. m.	
6 15	6 30	102
6 30	6 45	88
6 45	7 0	93
7 0	7 15	52
7 15	7 30	66
7 30	7 45	44
7 45	8 0	40
		485

Previous to 8h Professor Eastman had been engaged with other work in the Transit-Circle Room and was not aware of the meteoric display. From 8h to 9h he observed with Mr. Horrigan about half the time, all he could spare from other duties, with the following result:

Time.		Number of Meteors.
From—	To—	
h. m.	h. m.	
8 0	8 15	49
8 15	8 30	31
8 30	8 45	23
8 45	9 0	28
		131

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From 9h until the shower ceased both were constantly observing, with results as follows:

Time.		Number of Meteors.
From—	To—	
h. m.	h. m.	
9 0	9 30	50
9 30	10 0	46
10 0	10 10	4
		100

At 8h the sky was perfectly clear.

At 9h 40m light clouds and haze appeared in the southwest, and by 10h 15m the haze had reached nearly to the zenith. No meteors were seen after 10h 10m.

Before 6h p. m. the watchman counted ten meteors, which, added to those seen afterward, make a total of 726.

Professor Eastman succeeded in observing, with a meteor-spectroscope by John Browning, the spectra of two meteors.

The first meteor had a very faint, continuous spectrum, with a very decided increase of intensity in the portion between the green and yellow.

The second had a fainter but continuous spectrum, the brightest portion being in the green.

Both of these meteors moved from the radiant toward γ Pegasi.

The radiant was not so easily determined as in the case of the meteors of November 13–14. The space from which most of the meteors seemed to emanate, or in which their tracks produced backward would cross, appeared to be elliptical, the major axis passing through μ Andromedæ and to a point about 6° toward γ Andromedæ. Its entire length was about 9°. The length of the minor axis was about 5°.5. Most of the meteors were small, and the average duration of flight was from 0s.3 to 0s.5. A few of the larger ones left trains which were not visible more than 1s.5. Several meteors moved with very high velocity, apparently like lightning, and the light resembled that of the electric spark.

MISCELLANEOUS OBSERVATIONS.

In many of the observations which follow it was impossible to fix the position of the meteors on account of clouds and haze, but whenever it was practicable full details are given.

June 10.—Several meteors seen in the evening in the northeast through clouds and haze.

July 29.—Several meteors seen during the night; all small.

August 6.—Several bright meteors seen from 8h to 10h p. m.

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August 9.—Twenty-three small meteors were counted by one observer from 9^h to 10^h p. m.

November 15.—Thirteen small meteors counted by one observer from 3^h to 5^h a. m.

November 28.—Seven small meteors counted by one observer from 3^h to 3^h 30^m a m. All appeared to move southwest from near ξ Ursæ Majoris.

In the column marked "observer," in the following table, E. indicates Professor Eastman, and H. Mr. Horrigan.

Date.	Washington Mean Time.	Observer.	Magnitude.	Color.	Duration.	Appearance and Duration of Train.	Length of Path.	Course of Meteors among the Stars.
1872.	h. m.				s.		°	
Jan. 30	9 5 p. m.	H.	1	Orange.	4.0	Train lasted 3s	20	From β Cassiopeæ toward Polaris. Motion seemed to be by impulses, but slow.
July 28	8 55 p. m.	H.	1	White.	1.0	No train.	8	Fell almost perpendicularly from α Cassiopeæ.
28	9 18 p. m.	H.	1	White.	1.0	Train.	12	
Aug. 3	10 20 p. m.	H.	2	White.	1.0	Train.	15	South from a point 20° east of Polaris.
6	9 55 p. m.	H.	2	White.	1.0	Short train.	8	From Polaris toward γ Ursæ Majoris.
9	8 18 p. m.	H.	2	Orange and white.	2.0	Long train.	15	Northeast from Saturn.
9	8 37 p. m.	H.	2	Orange and white.	1.5	Long train.	20	South from α Cassiopeæ.
9	8 40 p. m.	H.	3	White.	1.0	Short train.	10	South from ζ Ursæ Majoris.
9	9 5 p. m.	H.	2	White.	1.0	Short train.	15	South from ε Ursæ Majoris.
9	9 16 p. m.	H.	2	Orange.	1.0	No train.	15	South from α Andromedæ.
Nov. 12	9 0 p. m.	E.	2	Orange.	1.5	No train.	15	From 3° east of α Orionis vertically toward the horizon.
Dec. 9	10 45 p. m.	E.	1	White.	1.0	No train.	10	From ζ Ursæ Minoris toward ζ Draconis.

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LIST

OF

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THE YEAR 1872.

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LIST OF PUBLICATIONS PRESENTED TO THE LIBRARY IN 1872.

Date.	Publications.	From whom received.
Jan. 11	Account of the operations of the great trigonometrical survey of India, vol. 1.	Her Britannic Majesty's Secretary of State for India, India Office, London.
15	Programma delle osservazioni fisiche che veranno esequite nel Trafero del Frejus. Signore P. A. Secchi, Ing. D. Muller, e P. F. Denza.	P. F. Denza, Moncalieri, Turin, Italy.
20	Astronomical observations and researches made at Dunsink, the observatory of Trinity College, Dublin, 1868–69, vol. 1.	Francis Brünnow, Ph. D., Director, Dublin, Ireland.
	Tables of Isis computed with regard to the perturbations of Jupiter, Mars, and Saturn, &c.	The same.
	Report of the Kew committee of the British Association, 1870–71.	G. M. Whipple, Kew Observatory.
	Memoirs of the Royal Astronomical Society, vol. 39, part 1....	Royal Astronomical Society.
	Osservazioni delle ecclise solare del giorno 28 Luglio 1851, fatte in diversi osservatorii di Europa; calcolate dal Professore G. Santini.	Prof. G. Santini, Director of the Observatory at Padua.
	Proposta di un cannone di grosso calibro. I. P. Morgan, Capitano di artiglieria.	Ministerio della marina, Firenze.
	Exercitazioni dell' Accademia agrario di Pesaro, anno 14, serie 2, semestre 1–2.	Accademia agraria di Pesaro.
	Proceedings of the Literary and Philosophical Society of Liverpool, 57th session, 1868–69.	Secretary of the Literary and Philosophical Society, Liverpool.
	Effemeridi astronomiche di Milano per l'anno 1870, parte 1–2; l'anno 1871, parte 1.	Director of the Royal Observatory, Brera, Milan.
	British Nautical Almanac, 1874, 2 copies; 1875, 2 copies	Prof. J. R. Hind, Superintendent Nautical Almanac Office.
	Greenwich observations for 1869.....	Sir G. B. Airy, F. R. A. S., Astronomer-Royal, Greenwich Observatory.
	Astronomical results for 1869.....	The same.
	Magnetical and meteorological observations, 1869.....	The same.
	Report of Astronomer-Royal, June 3, 1871.....	The same.
	Annuaire de l'Académie royale de Belgique.....	A. Quetelet, Director of the Brussels Royal Observatory.
	Bulletins de l'Académie royale des sciences, lettres et des beaux-arts de Belgique, Bruxelles, 39me année, 2me serie, 1, 29–31.	The same.
	Annales de l'observatoire royal de Bruxelles, tome 20.....	The same.
	Annales météorologiques de l'observatoire royal de Bruxelles, 4me année.	The same.
	Observations des phénomènes périodiques, 1869	The same.
	Anthropométrie. A. D. Quetelet. 1871	The same.
	Sur l'anthropométrie. A. D. Quetelet. 1871.....	The same.
	Développement de la taille humaine. Quetelet.....	The same.
	Taille de l'homme à Venise pour l'âge de 20 ans	The same.
	Des lois concernant le développement de l'homme.....	The same.
	Notice de Sir J. Herschel	The same.
	Orages en Belgique, 1870	The same.
	Annuaire de l'observatoire royal de Bruxelles, 1871	The same.
	Annalen der Sternwarte in Leiden. Kaiser. 2ter Band, 1870 ..	Dr. F. Kaiser, Director of the Observatory, Leiden.
	Mittheilungen aus Justus Perthes' geographischer Anstalt, 17ter Band, 1871, 11. Ergänzungsheft, Nrn. 29–30.	Justus Perthes, Gotha.
	Berichte der zur Beobachtung der totalen Sonnenfinsterniss des Jahres 1868 nach Aden unternommenen österreichischen Expedition.	Prof. Dr. Edmund Weiss.
	Sternschnuppen-Beobachtungen in Aden	The same.
	Discussion der während der totalen Sonnenfinsterniss am 18ten August 1868 angestellten Beobachtungen und der daraus folgenden Ergebnisse. Weiss.	The same.
	Sternschnuppen und Kometen, neue Planeten und Kometen...	Dr. C. von Littrow.
	Observations of comets from B. C. 611 to A. D. 1640; extracted from the Chinese annals; translated, with introductory remarks, and an appendix comprising the tables necessary for reducing Chinese time to European reckoning; and a Chinese celestial atlas: by John Williams, F. S. A., assistant secretary Royal Astronomical Society.	Royal Astronomical Society, London.

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Date.	Publications.	From whom received.
Jan. 20	Sitzungsberichte der kaiserlichen Akademie der Wissenschaften: Mathematisch-naturwissenschaftliche Classe, 62ster Band, 1ste Abtheilung, 3tes–5tes Heft; 63ster Band, 1stes–5tes Heft, 1ste Abtheilung; 63ster Band, 1stes–4tes Heft, 2te Abtheilung.	The Imperial Academy, Vienna.
	Journal of the Scottish Meterological Society, new series, 1 vol., 32, October, 1871; vol. 1, No. 32.	A. Buchan, Secretary Scottish Meteorological Society.
	Nederlandsch meteorlogisch Jaarboek voor 1869–70. 4 copies...	Royal Meteorological Institute of the Netherlands.
Feb. 12	Beiträge zur Kentniss der Sternschnuppen, 2te Abhandlung....	Prof. E. Weiss, Vienna.
	Utkast till isoperimetriska Problemers füllstandiga Solution, akademisk Afhandling of C. E. Lundstrom.	C. E. Lundstrom, Stockholm.
	Berichte über die von Herrn Prof. E. Weiss ausgeführte Bestimmung der Breite und des Azimuthes zu Dablitz. Littrow.	Dr. C. von Littrow, Director of the Imperial Observatory, Vienna.
	Annalen der kaiserlich-königlichen Sternwarte in Wien, 3te Folge, 16ter–17ter Band, 1866–67.	The same.
	Schweizerische meteorologische Beobachtungen, Juni, Juli, December, 1870.	Dr. R. Wolf, Zurich.
	Bulletin météorologique mensuel de l'observatoire de l'université d'Upsal, vol. 2, Nos. 6–12; vol. 3, Nos. 1–6; décembre 1870–mars 1871.	Prof. G. Svanberg, Director of the Observatory, Upsala.
	Description d'un météorographe enregistreur, construit pour l'observatoire d'Upsal par Dr. A. G. Theorell.	The same.
	Nova acta Regiæ societatis scientiarium Upsaliensis, ser. tertiæ, vol. 7, fasc. 1869–70.	A. J. Ángstrom, Secretary Royal Academy of Sciences, Upsala.
	Recherches sur la rotation de la terre. H. Gyldén.....	Prof. H. Gyldén, Upsala.
	Monatliche Berichte über die Resultate aus den meteorologischen Beobachtungen angestellt an den königlich-sächsichen Stationen im Jahre 1870.	Dr. C. Bruhns, Director of the Observatory, Leipzig.
	Magnetische und meteorologische Beobachtungen auf der kaiserlich-königlichen Sternwarte zu Prag im Jahre 1870.	Dr. Carl Hornstein, Prag, Bohemia.
	Philosophical Transactions of the Royal Society of London, vol. 160, parts 1–2; vol. 161, part 1.	Prof. W. Hallowes Miller, LL. D., Foreign Secretary Royal Society, London.
	Proceedings of Royal Society, vol. 18, Nos. 119–129.....	The same.
	Astronomisch-geodätische Arbeiten im Jahre 1870. Leipzig, 1871. Dr. C. Bruhns.	Dr. C. Bruhns, Leipzig.
Mar. 13	Report on the fabrication of iron for defensive purposes, and its uses in modern fortifications, especially in works of coast-defense.	Maj. Gen. A. A. Humphreys, Chief of Engineers U. S. A.
	Meteorological observations made at the government observatory, Sydney, with abstract from the country-stations. October, 1871.	H. C. Russell, Government Astronomer for New South Wales.
15	Distinction des maxima et des minima dans un problème isoférimétrique. Lundstrom.	G. Svanberg, Director Observatory, Upsal.
	Alcuni risultati preliminari tratti dalle osservazioni di stelle cadenti. Schiaparelli.	Prof. G. V. Schiaparelli, Milan.
	Untersuchungen über die Winde der nördlichen Hemisphäre und ihre klimatologische Bedeutung, 2ter Theil.	Dr. J. Hann, Vienna.
	Memoirs of the American Academy of Arts and Sciences, new series, vol. 10, part 1.	Prof. J. Lovering, Cambridge.
16	Quarterly weather-report of the Meteorological Office, part 3, July to September, 1870–72.	R. H. Scott, esq., Director of the Meteorological Office, London.
	Contributions to terrestrial magnetism, No. XII. The magnetic survey of the British islands reduced to the epoch of 1842–45. Gen. Sir E. Sabine, K. C. B.	The same.
26	Researches in solar physics. De La Rue, Balfour Stewart, and B. Loewy, 1866, 1868, 1870.	B. Loewy, esq., Kew Observatory.
	Atlas météorologique de l'observatoire royal de Bruxelles. Quetelet. 5me année, pp.1–56.	A. Quetelet, Director Royal Observatory, Brussels.
April 10	Osservatorio astronomico argentino. Discursos sobre su inauguration, Octubre 24 1871.	Dr. B. A. Gould, Director.
19	Memorie della Società spettroscopisti italiani. Raccolate e pubblicate per cura del Prof. P. Tacchini. Palermo, 1872. Dispensa 1a–4a.	Prof. P. Tacchini, Italy.
	Atlas météorologique annuel de l'observatoire de Paris. 1869, 1870, 1871 réunies.	C. Delaunay, Director Imperial Observatory, Paris.
	Bulletin météorologique mensuel de l'observatoire de Paris, janvier, février, mars 1872.	The same.
	Bulletin international de l'observatoire de Paris, à 13me avril 1872.	The same.
	Bulletin astronomique, à 15me avril 1872	The same.
	Atlas des mouvemens généraux de l'atmosphère, 1865.....	The same.
24	Report of the United States Coast Survey for 1868	Prof. B. Peirce, Superintendent Coast Survey.

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Date.	Publications.	From whom received.
April 24	Osservazioni delle meteore luminose nel 1872–73. Schiaparelli e Denza.	G. V. Schiaparelli and P. F. Denza, Turin.
	Currents and surface-temperature of the North Atlantic Ocean, from the equator to 40° north latitude, for each month of the year. London, 1872.	R. H. Scott, Director of the Meteorological Office, London.
May 2	Monthly meteorological register of the Magnetic Observatory, Toronto, Canada, May to December, 1871.	G. T. Kingston, Director of Magnetic Observatory, Toronto.
	General metorological register for 1871.....	The same.
	Meteorological observations, Government Observatory, Sydney, New South Wales.	H. C. Russell, B. A., F. R. S., Astronomer for New South Wales.
	Meteorological observations for January and February, 1872, at Vienna, Pola, and Fiume.	Dr. C. Jelinek, Vienna.
	Meteorological observations at Brisbane and other stations, New South Wales.	E. MacDonnell, Government Observer.
	Elenci dei bastimenti della marina Austro-Ungarica da guerra e mercantile e dei loro segnali distintive. Codice internationale dei signale. Trieste, 1872.	The Austrian Lloyds, Triest.
	The origin of the stars. 12mo. J. Ennis.....	Jacob Ennis, Philadelphia.
June 3	Philosophical transactions of the Royal Society of London, 1871, vol. 161, part 2.	Prof. W. H. Miller, Foreign Secretary Royal Astronomical Society.
	Proceedings of the Royal Society, vol. 20, Nos. 130–133	The same.
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	Détermination télégraphique de la différence de longitude entre la station astronomique du Righi-Kulm et les observatoires de Zurich et de Neuchatel. E. Plantamour, R. Wolf et A. Hirsch. Genève et Bâle, 1871.	MM. Plantamour, Hirsch, and Wolf, Geneva.
	Résumé météorologique, 1869 et 1870, pour Genève et le Grand St. Bernard, par M. E. Plantamour.	Prof. E. Plantamour.
	Nouvelles expériences faites avec le pendule à reversion et détermination de la présanteur à Genève et au Righi-Kulm. Plantamour.	The same.
	Meteorologische Beobachtungen angestellt auf der Leipziger Universitäts-Sternwarte im Jahre 1870. Bruhns.	Prof. Dr. C. Bruhns, Director of the Observatory of the University of Leipsic.
4	Resultate aus den meteorologischen Beobachtungen angestellt an fünfundzwanzig königlich-sächsischen Stationen im Jahre 1869. Dr. C. Bruhns.	The same.
	Bestimmung der Längendifferenz zwischen Leipzig und Wien. Bruhns und Weiss.	The same.
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	Zur experimentalen Aesthetik, von Gustav Theo. Fechner. Leipzig.	The same.
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	Materyaly do Klimatografii Galicyi zebra neprzezşękeye meteorologiczna komisyi fizyograficznej C. K. Towarzystiwa, Nauk Krakow. Rok. 1870.	Prof. Dr. Karlinski, Director of the Observatory, Cracow, Russia.
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	Journal of the Statistical Society of London. December, 1871..	F. Purdy, esq., Editor, London.
	Proceedings of the London Mathematical Society, No. 41, vol. 4.	Prof. A. Cayley, Vice-President London Mathematical Society, London.
	Jahresbericht der norddeutschen Seewarte für das Jahr 1871. W. v. Freeden.	W. von Freeden, Director North German Naval Observatory, Hamburg.
	Meteorologische Beobachtungen angestellt in Dorpat im Jahre 1866 und im Jahre 1870.	Dr. Arthur von Oettingen, Dorpat.
	Programm der eidgenossisch-polytechnischen Schule für das Schuljahr 1871–72. Zürich.	Director Polytechnic School, Zurich.
	Magnetische Ortsbestimmungen im Königreiche Ungarn, 3te Folge, 1871.	Dr. Guido Schenzl, Vienna.
	Weather-reports, Meteorological Office, London, July 1 to December 31, 1871.	R. H. Scott, Director of the Meteorological Office, London.
July 1	Monthly records of results of observations in meteorology, terrestrial magnetism, &c., taken at the Melbourne observatory during January and February, 1872.	R. L. J. Ellery, Superintendent, Government Astronomer, Melbourne, Australia.

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Date.	Publications.	From whom received.
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	Bulletin mensuel de la Société d'acclimatation, 2me serie, tome 9, No. 4, avril 1872.	A. Geoffroy St. Hilaire, General Secretary.
	Forme delle protuberanze regioni del magnesio e del ferro sulla superficie del sole. P. Tacchini.	P. Tacchini, Palermo.
	Astronomical observations made at the Edinburgh observatory, 1860 to 1869, with additions to the year 1871.	C. Piazzi Smyth, Astronomer-Royal, Edinburgh.
8	A manual of geometrical and infinitesimal analysis, by B. Sestini, S. J.	Prof. B. Sestini, S. J., Woodstock College, Howard County, Maryland.
12	Di alcuni fenomeni che si manifestarono sulle linee telegrafiche durante le grande aurora boreale del 4 Febbraio 1872; della origine delle aurore boreali.	Prof. G. B. Donati, Florence.
	Description d'un météorographe imprimeur, construit aux frais du gouvernement suédois par Dr. A. G. Theorell. Mai 1871.	Dr. A. G. Theorell, Stockholm.
19	Mittheilungen aus der norddeutschen Seewarte. IV. Die Normalwege der Hamburger Dampfer zwischen dem Kanal und New York, nach den Journal-Auszügen derselben in den Jahren 1860–69.	W. von Freeden, Directorof North German Naval Observatory, Hamburg.
	Second supplement to the papers on the eastern and northern extension of the Gulf Stream, Hydrographic Office, Washington, D. C.	Capt. R. H. Wyman, U. S. N., Hydrographic Office.
	Nuevos metodicos astronomicos para determinar la hora, el azimut, la latitud y longitud geograficas. F. Diaz Covarrubias, Mexico. Tratado de topografia y geodesia, tomo 1–2.	F. Diaz Covarrubias.
Aug. 2	Journal of the Scottish Meteorological Society, Nos. 33–34.	A. Buchan, Esq., Secretary Scottish Meteorological Society.
	Proceedings of the Royal Geographical Society, vol. 16, No. 2.	R. C. Markham and R. H. Major, Secretaries.
	Bulletin météorologique mensuel de l'observatoire de l'université, Upsal, vol. 1, Nos. 1–2; vol. 3, Nos. 7–12.	J. ngstrom, Secretary Royal Academy of Sciences, Upsal.
	Nova acta Regiæ societatis scientiarium Upsaliensis, ser. 3, vol. 8, fasc. 1.	The same.
	Meteorologiska lakttagelser i Sverige, utgifna af koniglick-svenska Vetenskaps Akademien, 9de–12te Bandet.	Prof. J. Japetus Sm. Steenstrup, University of Copenhagen.
	Sitzungsberichte der kaiserlichen Akademie der Wissenschaften, mathematisch-naturwissenschaftliche Classe, Wien, 64ster Band, 1stes–5tes Heft, 1871, Juni, Juli, October, November und December; 64ster Band, 2te Abtheilung, 1stes–5tes Heft, Juni–December, 1871.	A. Schrötter, Secretary of Royal Academy of Sciences, Vienna.
	Denkschriften der kaiserlichen Akademie der Wissenschaften, 31ster Band.	The same.
	Sammlung von Hülfstafeln der Berliner Sternwarte. W. Förster, Berlin, 1869.	Dr. W. Förster, Berlin, Prussia.
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	Astronomische Mittheilungen, XXIX.....	The same.
	Proceedings of the London Mathematical Society, Nos. 44–46.	Prof. Arthur Cayley, Vice-President, Cambridge.
	Den egendomliga Varmefordelningen i Europa under Maj. Manad. 1867.	Royal Danish Society of Sciences, Copenhagen, Denmark.
	Oversigt over det kongelige danske Videnskabernes Selskabs Forhandlinger og dets Medlemmers Arbeider i Aaret 1871.	The same.
	A chart and remarks exhibiting the proposed method for publication of meteorological information for the more important parts of the ocean. R. H. Scott and Henry Toynbee.	R. H. Scott, Director Meteorological Office, London.
8	Report of the meteorological committee of the Royal Society for the year ending December 31, 1871.	The same.
	Sulla forma della radiazione dette perseidi o meteore d'Agosto; lettera S. C. P. Alessandro Serpieri al Prof. Schiaparelli, lettera 1a–3a.	Padre Alessandre Serpieri, Urbino, Italy.
	Sul radiante delle stelle cadenti delle perseidi nell' Agosto 1871. H. Serpieri.	The same.
	Le influenze del sole sui pianeti, A. Serpieri, lettera 1a–3a.....	The same.
9	Bolletino meteorologico ed astronomico del regio osservatorio dell' università di Torino, anno V, 1872.	Alessandro Dorna, Director, Torino, Italy.
	Supplemento al Vº bulletino annuale 1870 dell osservatorio. Torino, 1871.	The same.
12	Preliminary report, explorations in Nevada and Arizona, War Department, 1871. Report of First Lieut. G. M. Wheeler, Corps of Engineers.	Brig. Gen. A. A. Humphreys.
	Ueber ein neues Variations-Instrument für die Vertical-Intensität des Erdmagnetismus, von H. Wild. [Mélanges physiques et chimiques, Académie imperiale de St. Pétersbourg, tome 8.] 22d February to 5th May, 1872.	Prof. H. Wild, Director Central Physical Observatory, St. Petersburg, Russia.

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Date.	Publications.	From whom received.
Oct. 3	Journal of the Statistical Society, London, for June, 1872.....	Mr. Frederick Purdy, Editor, 6 Charing Cross, London.
	Bericht über die von Herrn Prof. E. Weiss ausgeführte Bestimmung der Breite und des Azimuths auf dem Laaer Berge bei Wien. C. von Littrow.	C. von Littrow, Vienna.
	Annalen der kaiserlich-königlichen Sternwarte in Wien, 3te Folge, 18ter Band, Jahrgang 1868. Wien, 1872.	The same.
	Die Declination der bei Gradmessung zu Breitenbestimmungen benutzten Fixsterne, von C. Bruhns.	Dr. C. Bruhns, Leipzig.
	Monatliche Berichte über die Resultate aus den meteorologischen Beobachtungen angestellt an den königlich-sächsischen Stationen, 1871.	The same.
Oct. 9	Repertorium für Meteorologie. H. Wild. Band 2, Heft 2.....	Dr. H. Wild, Director of the Central Observatory of St. Petersburg.
	Meteorologische Beobachtungen angestellt in Dorpat im Jahre 1871, Oettingen und Weihrauch, 6ter Jahrgang, 2ter Band, 1stes Heft.	Dr. Oettingen and Weihrauch, Dorpat, Russia.
18	Magnetical and meteorological observations made at the Government Observatory, Bombay, presented by Her Britannic Majesty's Secretary of State for India. India Office, London.	Her Britannic Majesty's Secretary of State, India Office, London.
	Anales de la Sociedad Humboldt. Julio 1870, Julio 1872.....	F. Diaz Covarrubias, Mexico, Mexico.
Dec. 31	Bulletin météorlogique de Montsouris. (To November, 1872, inclusive; now under the Imperial Observatory.)	Director of the Imperial Observatory, Paris.
	Bulletin astronomique de l'observatoire de Paris.....	The same.
	Transactions of the Wisconsin Academy of Sciences, Arts and Letters, 1870–72.	Dr. J. W. Hoyt, President of the Wisconsin Academy, Madison, Wisconsin.
	Transactions of the Bombay Geological Society.....	J. Burgess, Acting Secretary, through Lieut. Moreland, F. R. S., Home Sec'y.
	Monthly Notices of the Royal Astronomical Society, vol. 32, 1 to 9, inclusive. 1871, to June, 1872.	Prof. A. Cayley, President Royal Astronomical Society, also Vice-President of the London Mathematical Society.
	Proceedings of the London Mathematical Society, Nos. 41 to 47 of vol. 4.	The same.

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APPENDIX I.

TABLES

OF

INSTRUMENTAL CONSTANTS AND CORRECTIONS

FOR THE REDUCTION OF

TRANSIT OBSERVATIONS

MADE AT THE

U. S. NAVAL OBSERVATORY.

PREPARED

BY

PROFESSOR JOHN R. EASTMAN, U. S. N.

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SPECIAL TABLES FOR DETERMINING THE AZIMUTH CONSTANT.

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TABLES

FOR DETERMINING THE

AZIMUTH CONSTANT,

FROM OBSERVATIONS OF

α, δ, AND λ URSÆ MINORIS AND 51 CEPHEI,

AT THE

UNITED STATES NAVAL OBSERVATORY.

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EXPLANATION.

In the following tables the first column on each page contains the Constant from $0^s.01$ to $0^s.50$, inclusive.

The remaining columns contain the Corrections.

The *argument* is the declination of the star, and is found at the top of each column of the Corrections.

The correction for azimuth is denoted by Aa.
The correction for level is denoted by Bb.
The correction for collimation is denoted by Cc.

For the methods of determining the values of the factors A, B, and C, and the constants a, b, and c, see "Introduction to the Observations with the Transit Circle, 1870."

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VALUES OF THE AZIMUTH CORRECTION, *Aa*.

Argument: Declination of Star.

The Correction and the Constant have opposite signs.

Constant.	Declination of Star.																						
	86° 35′	36′	37′	38′	39′	87° 9′	10′	11′	12′	13′	14′	15′	88° 36′	37′	38′	39′	40′	41′	42′	43′	44′	45′	46′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.12	0.12	0.13	0.13	0.13	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.31	0.32	0.32	0.32	0.33	0.33	0.34	0.34	0.35	0.35	0.36
.02	0.25	0.25	0.25	0.25	0.25	0.30	0.30	0.30	0.31	0.31	0.31	0.31	0.62	0.63	0.64	0.65	0.66	0.66	0.67	0.68	0.69	0.70	0.71
.03	0.37	0.37	0.38	0.38	0.38	0.45	0.45	0.46	0.46	0.46	0.46	0.47	0.94	0.95	0.96	0.97	0.98	1.00	1.01	1.02	1.04	1.05	1.07
.04	0.50	0.50	0.50	0.50	0.51	0.60	0.60	0.61	0.61	0.62	0.62	0.62	1.25	1.26	1.28	1.30	1.31	1.33	1.35	1.36	1.38	1.40	1.42
.05	0.62	0.62	0.63	0.63	0.63	0.75	0.76	0.76	0.76	0.77	0.78	0.78	1.56	1.58	1.60	1.62	1.64	1.66	1.68	1.71	1.73	1.75	1.78
0.06	0.74	0.75	0.75	0.76	0.76	0.90	0.91	0.91	0.92	0.92	0.93	0.93	1.87	1.90	1.92	1.94	1.97	1.99	2.02	2.05	2.07	2.10	2.13
.07	0.87	0.87	0.88	0.88	0.89	1.05	1.06	1.06	1.07	1.08	1.08	1.09	2.18	2.21	2.24	2.27	2.30	2.33	2.36	2.39	2.42	2.45	2.49
.08	0.99	1.00	1.00	1.01	1.01	1.20	1.21	1.22	1.22	1.23	1.24	1.25	2.50	2.53	2.56	2.59	2.62	2.66	2.69	2.73	2.77	2.80	2.84
.09	1.12	1.12	1.13	1.13	1.14	1.35	1.36	1.37	1.38	1.39	1.39	1.40	2.81	2.84	2.88	2.92	2.95	2.99	3.03	3.07	3.11	3.15	3.10
.10	1.24	1.25	1.25	1.26	1.27	1.50	1.51	1.52	1.53	1.54	1.55	1.56	3.12	3.16	3.20	3.24	3.28	3.32	3.37	3.41	3.46	3.50	3.55
0.11	1.36	1.37	1.38	1.39	1.39	1.65	1.66	1.67	1.68	1.69	1.70	1.71	3.43	3.48	3.52	3.56	3.61	3.66	3.70	3.75	3.85	3.85	3.91
.12	1.49	1.50	1.50	1.51	1.52	1.80	1.81	1.82	1.84	1.85	1.86	1.87	3.75	3.79	3.84	3.89	3.94	3.99	4.04	4.09	4.15	4.20	4.26
.13	1.61	1.62	1.63	1.64	1.65	1.95	1.96	1.98	1.99	2.00	2.01	2.03	4.06	4.11	4.16	4.21	4.27	4.32	4.38	4.44	4.49	4.56	4.62
.14	1.74	1.75	1.76	1.76	1.77	2.10	2.11	2.13	2.14	2.16	2.17	2.18	4.37	4.42	4.48	4.54	4.59	4.65	4.71	4.78	4.84	4.91	4.97
.15	1.86	1.87	1.88	1.89	1.90	2.25	2.26	2.28	2.30	2.31	2.32	2.34	4.68	4.74	4.80	4.86	4.92	4.99	5.05	5.12	5.19	5.26	5.33
0.16	1.98	2.00	2.01	2.02	2.03	2.40	2.42	2.43	2.45	2.46	2.48	2.49	4.99	5.06	5.12	5.18	5.25	5.32	5.39	5.46	5.53	5.61	5.68
.17	2.11	2.12	2.13	2.14	2.15	2.55	2.57	2.58	2.60	2.62	2.63	2.65	5.31	5.37	5.44	5.51	5.58	5.65	5.72	5.80	5.88	5.96	6.04
.18	2.23	2.24	2.26	2.27	2.28	2.70	2.72	2.74	2.75	2.77	2.79	2.80	5.62	5.69	5.76	5.83	5.91	5.98	6.06	6.14	6.22	6.31	6.39
.19	2.36	2.37	2.38	2.39	2.41	2.85	2.87	2.89	2.91	2.92	2.94	2.96	5.93	6.00	6.08	6.16	6.23	6.32	6.40	6.48	6.57	6.66	6.75
.20	2.48	2.49	2.51	2.52	2.53	3.00	3.02	3.04	3.06	3.08	3.10	3.12	6.24	6.32	6.40	6.48	6.56	6.65	6.73	6.82	6.91	7.01	7.10
0.21	2.60	2.62	2.63	2.65	2.66	3.15	3.17	3.19	3.21	3.23	3.25	3.27	6.56	6.64	6.72	6.80	6.89	6.98	7.07	7.17	7.26	7.36	7.46
.22	2.73	2.74	2.76	2.77	2.79	3.30	3.32	3.34	3.37	3.39	3.41	3.43	6.87	6.95	7.04	7.13	7.22	7.31	7.41	7.51	7.61	7.71	7.81
.23	2.85	2.87	2.88	2.90	2.91	3.45	3.47	3.50	3.52	3.54	3.56	3.58	7.18	7.27	7.36	7.45	7.55	7.64	7.74	7.85	7.95	8.06	8.17
.24	2.98	2.99	3.01	3.02	3.04	3.60	3.62	3.65	3.67	3.69	3.72	3.74	7.49	7.58	7.68	7.78	7.87	7.98	8.08	8.19	8.30	8.41	8.52
.25	3.10	3.12	3.13	3.15	3.17	3.75	3.78	3.80	3.82	3.85	3.87	3.90	7.80	7.90	8.00	8.10	8.20	8.31	8.42	8.53	8.64	8.76	8.88
0.26	3.22	3.24	3.26	3.28	3.29	3.90	3.93	3.95	3.98	4.00	4.02	4.05	8.12	8.22	8.32	8.42	8.53	8.64	8.75	8.87	8.99	9.11	9.24
.27	3.35	3.37	3.39	3.40	3.42	4.05	4.08	4.10	4.13	4.16	4.18	4.21	8.43	8.53	8.64	8.75	8.86	8.97	9.09	9.21	9.33	9.46	9.59
.28	3.47	3.49	3.51	3.53	3.55	4.20	4.23	4.26	4.28	4.31	4.33	4.36	8.74	8.85	8.96	9.07	9.19	9.31	9.43	9.55	9.68	9.81	9.95
.29	3.60	3.62	3.64	3.65	3.67	4.35	4.38	4.41	4.44	4.46	4.49	4.52	9.05	9.16	9.28	9.40	9.51	9.64	9.76	9.89	10.03	10.16	10.30
.30	3.72	3.74	3.76	3.78	3.80	4.50	4.53	4.56	4.59	4.62	4.64	4.67	9.36	9.48	9.60	9.72	9.84	9.97	10.10	10.24	10.37	10.51	10.66
0.31	3.84	3.87	3.89	3.91	3.93	4.65	4.68	4.71	4.74	4.77	4.80	4.83	9.68	9.80	9.92	10.04	10.17	10.30	10.44	10.58	10.72	10.86	11.01
.32	3.97	3.99	4.01	4.03	4.05	4.80	4.83	4.86	4.90	4.93	4.95	4.99	9.99	10.11	10.24	10.37	10.50	10.64	10.77	10.92	11.06	11.21	11.37
.33	4.09	4.12	4.14	4.16	4 18	4.95	4.98	5.02	5.05	5.08	5.11	5.14	10.30	10.43	10.56	10.69	10.83	10.97	11.11	11.26	11.41	11.56	11.72
.34	4.22	4.24	4.26	4.28	4.31	5.10	5.13	5.17	5.20	5.23	5.26	5.30	10.61	10.74	10.88	11.02	11.16	11.30	11.45	11.60	11.75	11.91	12.08
.35	4.34	4.36	4.39	4.41	4.43	5.25	5.28	5.32	5.36	5.39	5.42	5.45	10.93	11.06	11.20	11.34	11.48	11.63	11.78	11.94	12.10	12.26	12.43
0.36	4.46	4.49	4.51	4.54	4.56	5.40	5.44	5.47	5.51	5.54	5.57	5.61	11.24	11.38	11.52	11.66	11.81	11.97	12.12	12.28	12.45	12.61	12.79
.37	4.59	4.61	4.64	4.66	4.69	5.55	5.59	5.62	5.66	5.70	5.73	5.76	11.55	11.69	11.84	11.99	12.14	12.30	12.46	12.62	12.79	12.96	13.14
.38	4.71	4.74	4.76	4.79	4.81	5.70	5.74	5.78	5.81	5.85	5.88	5.92	11.86	12.01	12.16	12.31	12.47	12.63	12.79	12.97	13.14	13.32	13.50
.39	4.84	4.86	4.89	4.91	4.94	5.85	5.89	5.93	5.97	6.00	6.04	6.08	12.18	12.32	12.48	12.64	12.80	12.96	13.13	13.31	13.48	13.67	13.85
.40	4.96	4.99	5.02	5.04	5.07	6.00	6.04	6.08	6.12	6.16	6.19	6.23	12.49	12.64	12.80	12.96	13.12	13.30	13.47	13.65	13.83	14.02	14.21
0.41	5.08	5.11	5.14	5.17	5.19	6.15	6.19	6.23	6.27	6.31	6.35	6.39	12.80	12.96	13.12	13.28	13.45	13.63	13.80	13.99	14.17	14.37	14.56
.42	5.21	5.24	5.27	5.29	5.32	6.30	6.34	6.38	6.43	6.47	6.50	6.54	13.11	13.27	13.44	13.61	13.78	13.96	14.14	14.33	14.52	14.72	14.92
.43	5.33	5.36	5.39	5.42	5.45	6.45	6.49	6.54	6.58	6.62	6.66	6.70	13.42	13.59	13.76	13.93	14.11	14.30	14.48	14.67	14.87	15.07	15.27
.44	5.46	5.49	5.52	5.54	5.57	6.60	6.64	6.69	6.73	6.77	6.81	6.86	13.74	13.90	14.08	14.26	14.44	14.63	14.81	15.01	15.21	15.42	15.63
.45	5.58	5.61	5.64	5.67	5.70	6.75	6.80	6.84	6.88	6.93	6.97	7.01	14.05	14.22	14.40	14.58	14.76	14.96	15.15	15.35	15.56	15.77	15.98
0.46	5.70	5.74	5.77	5.80	5.83	6.90	6.95	6.99	7.04	7.08	7.12	7.17	14.36	14.54	14.72	14.90	15.09	15.29	15.49	15.70	15.90	16.12	16.34
.47	5.83	5.86	5.89	5.92	5.95	7.05	7.10	7.14	7.19	7.24	7.28	7.32	14.67	14.85	15.04	15.23	15.42	15.62	15.82	16.04	16.25	16.47	16.69
.48	5.95	5.99	6.02	6.05	6.08	7.20	7.25	7.30	7.34	7.39	7.43	7.48	14.98	15.17	15.36	15.55	15.75	15.96	16.16	16.38	16.59	16.82	17.05
.49	6.08	6.11	6.14	6.17	6.21	7.35	7.40	7.45	7.50	7.54	7.59	7.63	15.30	15.48	15.68	15.88	16.08	16.29	16.50	16.72	16.94	17.17	17.40
.50	6.20	6.24	6.27	6.30	6.33	7.50	7.55	7.60	7.64	7.69	7.74	7.79	15.61	15.80	16.00	16.20	16.41	16.62	16.83	17.06	17.29	17.52	17.76

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VALUE OF THE AZIMUTH CORRECTION, *Aa*.

Argument: Declination of Star. The Correction and the Constant have opposite signs.

Constant.	Declination of Star.																					
	88° 47′	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	89° 0′	1′	2′	3′	4′	5′	6′	7′	8′	9′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.36	0.37	0.37	0.38	0.38	0.39	0.39	0.40	0.41	0.41	0.42	0.43	0.43	0.44	0.45	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52
.02	0.72	0.73	0.74	0.75	0.76	0.77	0.79	0.80	0.81	0.82	0.84	0.85	0.86	0.88	0.89	0.91	0.93	0.94	0.96	0.98	1.00	1.02	1.04
.03	1.08	1.10	1.11	1.13	1.14	1.16	1.18	1.20	1.22	1.24	1.26	1.28	1.30	1.32	1.34	1.36	1.39	1.41	1.44	1.47	1.50	1.52	1.55
.04	1.44	1.46	1.48	1.50	1.53	1.55	1.57	1.60	1.62	1.65	1.67	1.70	1.73	1.76	1.79	1.82	1.85	1.89	1.92	1.96	1.99	2.03	2.07
.05	1.80	1.83	1.85	1.88	1.91	1.94	1.96	2.00	2.03	2.06	2.09	2.13	2.16	2.20	2.24	2.28	2.32	2.36	2.40	2.45	2.49	2.54	2.59
0.06	2.16	2.19	2.22	2.26	2.29	2.32	2.36	2.39	2.43	2.47	2.51	2.55	2.60	2.64	2.68	2.73	2.78	2.83	2.88	2.94	2.99	3.05	3.11
.07	2.52	2.56	2.59	2.63	2.67	2.71	2.75	2.79	2.84	2.88	2.93	2.98	3.03	3.08	3.13	3.18	3.24	3.30	3.36	3.42	3.49	3.56	3.63
.08	2.88	2.92	2.96	3.01	3.05	3.10	3.14	3.19	3.24	3.29	3.35	3.40	3.46	3.52	3.58	3.64	3.70	3.77	3.84	3.91	3.99	4.07	4.15
.09	3.24	3.29	3.33	3.38	3.43	3.48	3.54	3.59	3.65	3.71	3.77	3.83	3.89	3.96	4.02	4.10	4.17	4.24	4.32	4.40	4.49	4.57	4.66
.10	3.60	3.65	3.71	3.76	3.81	3.87	3.93	3.99	4.05	4.12	4.18	4.25	4.32	4.40	4.47	4.55	4.63	4.71	4.80	4.89	4.99	5.08	5.18
0.11	3.96	4.02	4.08	4.14	4.20	4.26	4.32	4.39	4.46	4.53	4.60	4.68	4.76	4.84	4.92	5.00	5.09	5.19	5.28	5.38	5.48	5.59	5.70
.12	4.32	4.38	4.45	4.51	4.58	4.65	4.72	4.79	4.86	4.94	5.02	5.10	5.19	5.28	5.37	5.46	5.56	5.66	5.76	5.87	5.98	6.10	6.22
.13	4.68	4.75	4.82	4.89	4.96	5.03	5.11	5.19	5.27	5.35	5.44	5.53	5.62	5.71	5.81	5.92	6.02	6.13	6.24	6.36	6.48	6.61	6.74
.14	5.04	5.11	5.19	5.26	5.34	5.42	5.50	5.59	5.67	5.76	5.86	5.95	6.05	6.15	6.26	6.37	6.48	6.60	6.72	6.85	6.98	7.12	7.26
.15	5.40	5.48	5.56	5.64	5.72	5.81	5.90	5.98	6.08	6.18	6.28	6.38	6.48	6.59	6.71	6.82	6.94	7.07	7.20	7.34	7.48	7.62	7.77
0.16	5.76	5.84	5.93	6.02	6.10	6 19	6.29	6.38	6.48	6.59	6.69	6.80	6.92	7.03	7.16	7.28	7.41	7.54	7.68	7.83	7.98	8.13	8.29
.17	6.12	6.21	6.30	6.39	6.48	6.58	6.68	6.78	6.89	7.00	7.11	7.23	7.35	7.47	7.60	7.74	7.87	8.02	8.16	8.32	8.47	8.64	8.81
.18	6.48	6.58	6.67	6.77	6.87	6.97	7.07	7.18	7.30	7.41	7.53	7.65	7.78	7.91	8.05	8.19	8.33	8.49	8.64	8.81	8.97	9.15	9.33
.19	6.84	6.94	7.04	7.14	7.25	7.35	7.47	7.58	7.70	7.82	7.95	8.08	8.21	8.35	8.50	8.64	8.80	8.96	9.12	9.29	9.47	9.66	9.85
.20	7.20	7.31	7.41	7.52	7.63	7.74	7.86	7.98	8.11	8.23	8.37	8.50	8.65	8.79	8.94	9.10	9.26	9.43	9.60	9.78	9.97	10.16	10.37
0.21	7.56	7.67	7.78	7.90	8.01	8.13	8.25	8.38	8.51	8.65	8.79	8.93	9.08	9.23	9.39	9.56	9.72	9.90	10.08	10.27	10.47	10.67	10.88
.22	7.92	8.04	8.15	8.27	8.39	8.52	8.65	8.78	8.92	9.06	9.20	9.35	9.51	9.67	9.84	10.01	10.19	10.37	10.56	10.76	10.97	11.18	11.40
.23	8.28	8.41	8.52	8.65	8.77	8.90	9.04	9.18	9.32	9.47	9.62	9.78	9.94	10.11	10.29	10.46	10.65	10.84	11.04	11.25	11.47	11.69	11.92
.24	8.64	8.77	8.89	9.02	9.15	9.29	9.43	9.58	9.73	9.88	10.04	10.20	10.38	10.55	10.73	10.92	11.11	11.32	11.52	11.74	11.96	12.20	12.44
.25	9.00	9.13	9.26	9.40	9.54	9.68	9.82	9.98	10.13	10.29	10.46	10.63	10.81	10.99	11.18	11.38	11.58	11.79	12.00	12.23	12.46	12.71	12.96
0.26	9.37	9.50	9.63	9.78	9.92	10.06	10.22	10.37	10.54	10.70	10.88	11.06	11.24	11.43	11.63	11.83	12.04	12.26	12.49	12.72	12.96	13.21	13.48
.27	9.73	9.86	10.00	10.15	10.30	10.45	10.61	10.77	10.94	11.12	11.30	11.48	11.67	11.87	12.07	12.28	12.50	12.73	12.97	13.21	13.46	13.72	13.99
.28	10.09	10.23	10.37	10.53	10.68	10.84	11.00	11.17	11.35	11.53	11.72	11.91	12.10	12.31	12.52	12.74	12.96	13.20	13.45	13.70	13.96	14.23	14.51
.29	10.45	10.59	10.74	10.90	11.06	11.23	11.40	11.57	11.75	11.94	12.13	12.33	12.54	12.75	12.97	13.20	13.43	13.67	13.93	14.19	14.46	14.74	15.03
.30	10.81	10.96	11.12	11.28	11.44	11.61	11.79	11.97	12.16	12.35	12.55	12.76	12.97	13.19	13.42	13.65	13.89	14.14	14.41	14.68	14.96	15.25	15.55
0.31	11.17	11.32	11.49	11.66	11.82	12.00	12.18	12.37	12.56	12.76	12.97	13.18	13.40	13.63	13.86	14.10	14.35	14.62	14.89	15.17	15.45	15.75	16.07
.32	11.53	11.69	11.86	12.03	12.20	12.39	12.58	12.77	12.97	13.17	13.39	13.61	13.83	14.07	14.31	14.56	14.82	15.09	15.37	15.65	15.95	16.26	16.59
.33	11.89	12.05	12.23	12.41	12.59	12.77	12.97	13.17	13.38	13.59	13.81	14.03	14.27	14.51	14.76	15.02	15.28	15.56	15.85	16.14	16.45	16.77	17.10
.34	12.25	12.42	12.60	12.78	12.97	13.16	13.36	13.57	13.78	14.00	14.23	14.46	14.70	14.95	15.20	15.47	15.74	16.03	16.33	16.63	16.95	17.28	17.62
.35	12.61	12.79	12.97	13.16	13.35	13.55	13.76	13.97	14.19	14.41	14.64	14.88	15.13	15.39	15.65	15.92	16.20	16.50	16.81	17.12	17.45	17.79	18.14
0.36	12.97	13.15	13.34	13.54	13.73	13.94	14.15	14.36	14.59	14.82	15.06	15.31	15.56	15.83	16.10	16.38	16.67	16.97	17.29	17.61	17.95	18.30	18.66
.37	13.33	13.52	13.71	13.91	14.11	14.32	14.54	14.76	15.00	15.23	15.48	15.73	16.00	16.27	16.55	16.84	17.13	17.45	17.77	18.10	18.44	18.80	19.18
.38	13.69	13.88	14.08	14.29	14.49	14.71	14.93	15.16	15.40	15.64	15.90	16.16	16.43	16.70	16.99	17.29	17.59	17.92	18.25	18.59	18.94	19.31	19.70
.39	14.05	14.25	14.45	14.66	14.87	15.10	15.33	15.56	15.81	16.06	16.32	16.58	16.86	17.14	17.44	17.74	18.06	18.39	18.73	19.08	19.44	19.82	20.21
.40	14.41	14.61	14.82	15.04	15.26	15.48	15.72	15.96	16.21	16.47	16.74	17.01	17.29	17.58	17.89	18.20	18.52	18.86	19.21	19.57	19.94	20.33	20.73
0.41	14.77	14.98	15.19	15.42	15.64	15.87	16.11	16.36	16.62	16.88	17.15	17.43	17.72	18.02	18.34	18.66	18.98	19.33	19.69	20.06	20.44	20.84	21.25
.42	15.13	15.34	15.56	15.79	16.02	16.26	16.51	16.76	17.02	17.29	17.57	17.86	18.16	18.46	18.78	19.11	19.45	19.80	20.17	20.55	20.94	21.34	21.77
.43	15.49	15.71	15.93	16.17	16.40	16.65	16.90	17.16	17.43	17.70	17.99	18.28	18.59	18.90	19.23	19.56	19.91	20.27	20.65	21.04	21.44	21.85	22.29
.44	15.85	16.07	16.30	16.54	16.78	17.03	17.29	17.56	17.83	18.11	18.41	18.71	19.02	19.34	19.68	20.02	20.37	20.75	21.13	21.52	21.93	22.36	22.81
.45	16.21	16.44	16.67	16.92	17.16	17.42	17.68	17.96	18.24	18.53	18.83	19.13	19.45	19.78	20.02	20.48	20.84	21.22	21.61	22.01	22.43	22.87	23.32
0.46	16.57	16.80	17.04	17.30	17.54	17.81	18.08	18.35	18.64	18.94	19.25	19.56	19.89	20.22	20.57	20.93	21.30	21.69	22.09	22.50	22.93	23.38	23.84
.47	16.93	17.17	17.41	17.67	17.93	18.19	18.47	18.75	19.05	19.35	19.66	19.98	20.32	20.66	21.02	21.38	21.76	22.16	22.57	22.99	23.43	23.89	24.36
.48	17.29	17.53	17.78	18.05	18.31	18.58	18.86	19.15	19.45	19.76	20.08	20.41	20.75	21.10	21.47	21.84	22.22	22.63	23.05	23.48	23.93	24.39	24.88
.49	17.65	17.90	18.15	18.42	18.69	18.97	19.26	19.55	19.86	20.17	20.50	20.83	21.18	21.54	21.91	22.30	22.69	23.10	23.53	23.97	24.43	24.90	25.40
.50	18.01	18.26	18.52	18.80	19.07	19.36	19.65	19.95	20.27	20.59	20.92	21.26	21.62	21.98	22.36	22.75	23.15	23.57	24.01	24.46	24.93	25.41	25.92

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VALUES OF THE AZIMUTH CORRECTION, *Aa.*, S. P.

Argument: Declination of Star.

The Constant has the same sign as the Correction.

Constant.	Declination of Star.																						
	86° 35′	36′	37′	38′	39′	87° 9′	10′	11′	12′	13′	14′	15′	88° 36′	37′	38′	39′	40′	41′	42′	43′	44′	45′	46′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.14	0.14	0.14	0.14	0.14	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.32	0.33	0.33	0.34	0.34	0.34	0.35	0.35	0.36	0.36	0.37
.02	0.27	0.27	0.28	0.28	0.28	0.33	0.33	0.33	0.33	0.33	0.33	0.34	0.65	0.66	0.67	0.67	0.68	0.69	0.70	0.71	0.72	0.73	0.74
.03	0.41	0.41	0.41	0.42	0.42	0.49	0.49	0.49	0.50	0.50	0.50	0.50	0.97	0.99	1.00	1.01	1.02	1.03	1.05	1.06	1.07	1.09	1.10
.04	0.55	0.55	0.55	0.55	0.56	0.65	0.65	0.66	0.66	0.67	0.67	0.67	1.30	1.31	1.33	1.35	1.36	1.38	1.40	1.41	1.43	1.45	1.47
.05	0.68	0.69	0.69	0.69	0.70	0.81	0.82	0.82	0.83	0.83	0.84	0.84	1.62	1.64	1.66	1.68	1.70	1.72	1.75	1.77	1.79	1.81	1.84
0.06	0.82	0.82	0.83	0.83	0.84	0.98	0.98	0.99	0.99	1.00	1.00	1.01	1.95	1.97	2.00	2.02	2.04	2.07	2.10	2.12	2.15	2.18	2.21
.07	0.96	0.96	0.97	0.97	0.97	1.14	1.14	1.15	1.16	1.16	1.17	1.18	2.27	2.30	2.33	2.36	2.38	2.41	2.44	2.48	2.51	2.54	2.57
.08	1.09	1.10	1.10	1.11	1.11	1.30	1.31	1.32	1.32	1.33	1.34	1.35	2.60	2.63	2.66	2.69	2.73	2.76	2.79	2.83	2.87	2.90	2.94
.09	1.23	1.24	1.24	1.25	1.25	1.46	1.47	1.48	1.49	1.50	1.51	1.51	2.92	2.96	2.99	3.03	3.07	3.10	3.14	3.18	3.22	3.27	3.31
.10	1.37	1.37	1.38	1.39	1.39	1.63	1.64	1.64	1.65	1.66	1.67	1.68	3.25	3.29	3.32	3.37	3.41	3.45	3.49	3.54	3.58	3.63	3.68
0.11	1.50	1.51	1.52	1.52	1.53	1.79	1.80	1.81	1.82	1.83	1.84	1.85	3.57	3.61	3.66	3.70	3.75	3.79	3.84	3.89	3.94	3.99	4.05
.12	1.64	1.65	1.66	1.66	1.67	1.95	1.96	1.97	1.98	2.00	2.01	2.02	3.90	3.94	3.99	4.04	4.09	4.14	4.19	4.24	4.30	4.36	4.41
.13	1.78	1.78	1.79	1.80	1.81	2.11	2.13	2.14	2.15	2.16	2.17	2.19	4.22	4.27	4.32	4.37	4.43	4.48	4.54	4.60	4.66	4.72	4.78
.14	1.91	1.92	1.93	1.94	1.95	2.28	2.29	2.30	2.32	2.33	2.34	2.36	4.55	4.60	4.66	4.71	4.77	4.83	4.89	4.95	5.02	5.08	5.15
.15	2.05	2.06	2.07	2.08	2.09	2.44	2.45	2.47	2.48	2.50	2.51	2.52	4.87	4.93	4.99	5.05	5.11	5.17	5.24	5.31	5.37	5.44	5.52
0.16	2.19	2.20	2.21	2.22	2.23	2.60	2.62	2.63	2.65	2.66	2.68	2.69	5.20	5.26	5.32	5.38	5.45	5.52	5.59	5.66	5.73	5.81	5.88
.17	2.32	2.33	2.35	2.36	2.37	2.76	2.78	2.80	2.81	2.83	2.84	2.86	5.52	5.59	5.65	5.72	5.79	5.86	5.94	6.01	6.09	6.17	6.25
.18	2.46	2.47	2.48	2.49	2.51	2.93	2.94	2.96	2.98	3.00	3.01	3.03	5.84	5.91	5.99	6.06	6.13	6.21	6.29	6.37	6.45	6.53	6.62
.19	2.60	2.61	2.62	2.63	2.64	3.09	3.11	3.13	3.14	3.16	3.18	3.20	6.17	6.24	6.32	6.39	6.47	6.55	6.63	6.72	6.81	6.90	6.99
.20	2.73	2.75	2.76	2.77	2.78	3.25	3.27	3.29	3.31	3.33	3.34	3.37	6.49	6.57	6.65	6.73	6.81	6.90	6.98	7.07	7.17	7.26	7.36
0.21	2.87	2.88	2.90	2.91	2.92	3.41	3.43	3.45	3.47	3.49	3.51	3.53	6.82	6.90	6.98	7.07	7.15	7.24	7.33	7.43	7.52	7.62	7.72
.22	3.00	3.02	3.04	3.05	3.06	3.58	3.60	3.62	3.64	3.66	3.68	3.70	7.14	7.23	7.32	7.40	7.50	7.59	7.68	7.78	7.88	7.99	8.09
.23	3.14	3.16	3.17	3.19	3.20	3.74	3.76	3.78	3.80	3.83	3.85	3.87	7.47	7.56	7.65	7.74	7.84	7.93	8.03	8.14	8.24	8.35	8.46
.24	3.28	3.30	3.31	3.33	3.34	3.90	3.92	3.95	3.97	3.99	4.02	4.04	7.79	7.89	7.98	8.08	8.18	8.28	8.38	8.49	8.60	8.71	8.83
.25	3.41	3.43	3.45	3.46	3.48	4.06	4.09	4.11	4.14	4.16	4.18	4.21	8.12	8.22	8.31	8.41	8.52	8.62	8.73	8.84	8.96	9.08	9.20
0.26	3.55	3.57	3.59	3.60	3.62	4.23	4.25	4.28	4.30	4.33	4.35	4.38	8 44	8.54	8.65	8.75	8.86	8.97	9.08	9.20	9.32	9.44	9.56
.27	3.69	3.71	3.73	3.74	3.76	4.39	4.41	4.44	4.47	4.49	4.52	4.54	8.77	8.87	8.98	9.09	9.20	9.31	9.43	9.55	9.67	9.80	9.93
.28	3.82	3.84	3.86	3.88	3.90	4.55	4.58	4.61	4.63	4.66	4.68	4.71	9.09	9.20	9.31	9.42	9.54	9.66	9.78	9.90	10.03	10.16	10.30
.29	3.96	3.98	4.00	4.02	4.04	4.72	4.74	4.77	4.80	4.83	4.85	4.88	9.42	9.53	9.64	9.76	9.88	10.00	10.13	10.26	10.39	10.53	10.67
.30	4.10	4.12	4.14	4.16	4.18	4.88	4.90	4.93	4.96	4.99	5.02	5.05	9.74	9.86	9.98	10.10	10.22	10.35	10.48	10.61	10.75	10.89	11.03
0.31	4.23	4.26	4.28	4.30	4.32	5.04	5.07	5.10	5.13	5.16	5.19	5.22	10.07	10.19	10.31	10.43	10.56	10.69	10.83	10.96	11.11	11.25	11.40
.32	4.37	4.39	4.42	4.43	4.45	5.20	5.23	5.26	5.29	5.32	5.35	5.39	10.39	10.52	10.64	10.77	10.90	11.04	11.17	11.32	11.47	11.62	11.77
.33	4.51	4.53	4.55	4.57	4.59	5.37	5.40	5.43	5.46	5.49	5.52	5.55	10.72	10.84	10.97	11.10	11.24	11.38	11.52	11.67	11.82	11.98	12.14
.34	4.64	4.67	4.69	4.71	4.73	5.53	5.56	5.59	5.62	5.66	5.69	5.72	11.04	11.17	11.31	11.44	11.58	11.73	11.87	12.03	12.18	12.34	12.51
.35	4.78	4.81	4.83	4.85	4.87	5.69	5.72	5.76	5.79	5.82	5.86	5.89	11.36	11.50	11.64	11.78	11.92	12.07	12.22	12.38	12.54	12.70	12.87
0.36	4.92	4.94	4.97	4.99	5.01	5.85	5.89	5.92	5.95	5.99	6.02	6.06	11.69	11.83	11.97	12.11	12.27	12.42	12.57	12.73	12.90	13.07	13.24
.37	5.05	5.08	5.11	5.13	5.15	6.02	6.05	6.09	6.12	6.16	6.19	6.23	12.01	12.16	12.30	12.45	12.61	12.76	12.92	13.09	13.26	13.43	13.61
.38	5.19	5.22	5.24	5.27	5.29	6.18	6.21	6.25	6.29	6.32	6.36	6.40	12.34	12.49	12.64	12.79	12.95	13.11	13.27	13.44	13.62	13.79	13.98
.39	5.33	5.35	5.38	5.41	5.43	6.34	6.38	6.41	6.45	6.49	6.52	6.56	12.66	12.82	12.97	13.12	13.29	13.45	13.62	13.79	13.97	14.16	14.34
.40	5.47	5.49	5.52	5.54	5.57	6.50	6.54	6.58	6.62	6.66	6.69	6.73	12.99	13.14	13.30	13.46	13.63	13.80	13.97	14.15	14.33	14.52	14.71
0.41	5.60	5.63	5.66	5.68	5.71	6.67	6.70	6.74	6.78	6.82	6.86	6.90	13.31	13.47	13.63	13.80	13.97	14.14	14.32	14.50	14.69	14.88	15.08
.42	5.74	5.77	5.80	5.82	5.85	6.83	6.87	6.91	6.95	6.99	7.03	7.07	13.64	13.80	13.97	14.13	14.31	14.49	14.67	14.86	15.05	15.25	15.45
.43	5.87	5.90	5.93	5.96	5.99	6.99	7.03	7.07	7.11	7.16	7.19	7.24	13.96	14.13	14.30	14.47	14.65	14.83	15.02	15.21	15.41	15.61	15.82
.44	6.01	6.04	6.07	6.10	6.12	7.15	7.19	7.24	7.28	7.32	7.36	7.40	14.29	14.46	14.63	14.81	14.99	15.18	15.36	15.56	15.77	15.97	16.18
.45	6.15	6.18	6.21	6.24	6.26	7.32	7.36	7.40	7.44	7.49	7.53	7.57	14.61	14.79	14.96	15.14	15.33	15.52	15.71	15.92	16.12	16.33	16.55
0.46	6.28	6.32	6.35	6.38	6.40	7.48	7.52	7.57	7.61	7.65	7.70	7.74	14.94	15.12	15.30	15.48	15.67	15.87	16.06	16.27	16.48	16.70	16.92
.47	6.42	6.45	6.49	6.51	6.54	7.64	7.68	7.73	7.77	7.82	7.86	7.91	15.26	15.44	15.63	15 82	16.01	16.21	16.41	16.62	16.84	17.06	17.29
.48	6.56	6.59	6.62	6.65	6.68	7.80	7.85	7.90	7.94	7.99	8.03	8.08	15.59	15.77	15.96	16.15	16.35	16.56	16.76	16.98	17.20	17.42	17.65
.49	6.69	6.73	6.76	6.79	6.82	7.97	8.01	8.06	8.10	8.15	8.20	8.25	15.91	16.10	16.29	16.49	16.69	16.90	17.11	17.33	17.56	17.79	18.02
.50	6.83	6.86	6.90	6.93	6.96	8.13	8.18	8.22	8.27	8.32	8.36	8.41	16.24	16.43	16.63	16.83	17.03	17.25	17.46	17.68	17.91	18.15	18.39

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VALUES OF THE AZIMUTH CORRECTION, *Aa*., S. P.

Argument: Declination of Star.

The Constant has the same sign as the Correction.

Constant.	Declination of Star.																					
	88° 47′	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	89° 0′	1′	2′	3′	4′	5′	6′	7′	8′	9′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.37	0.38	0.38	0.39	0.39	0.40	0.41	0.41	0.42	0.42	0.43	0.44	0.44	0.45	0.46	0.47	0.48	0.48	0.49	0.50	0.51	0.52	0.53
.02	0.74	0.76	0.77	0.78	0.79	0.80	0.81	0.82	0.84	0.85	0.86	0.88	0.89	0.90	0.92	0.94	0.95	0.97	0.99	1.00	1.02	1.04	1.06
.03	1.12	1.13	1.15	1.17	1.18	1.20	1.22	1.23	1.25	1.27	1.29	1.31	1.33	1.36	1.38	1.40	1.43	1.45	1.48	1.51	1.53	1.56	1.59
.04	1.49	1.51	1.53	1.55	1.58	1.60	1.62	1.65	1.67	1.70	1.72	1.75	1.78	1.81	1.84	1.87	1.90	1.94	1.97	2.01	2.04	2.08	2.12
.05	1.86	1.89	1.92	1.94	1.97	2.00	2.03	2.06	2.09	2.12	2.15	2.19	2.22	2.26	2.30	2.34	2.38	2.42	2.46	2.51	2.56	2.60	2.65
0.06	2.24	2.27	2.30	2.33	2.36	2.40	2.43	2.47	2.51	2.55	2.59	2.63	2.67	2.71	2.76	2.81	2.85	2.90	2.96	3.01	3.07	3.12	3.19
.07	2.61	2.64	2.68	2.72	2.76	2.80	2.84	2.88	2.93	2.97	3.02	3.06	3.11	3.17	3.22	3.27	3.33	3.39	3.45	3.51	3.58	3.65	3.72
.08	2.98	3.02	3.06	3.11	3.15	3.20	3.24	3.29	3.34	3.39	3.45	3.50	3.56	3.62	3.68	3.74	3.81	3.87	3.94	4.01	4.09	4.17	4.25
.09	3.35	3.40	3.45	3.50	3.55	3.60	3.65	3.70	3.76	3.82	3.88	3.94	4.00	4.07	4.14	4.21	4.28	4.36	4.43	4.52	4.60	4.69	4.78
.10	3.73	3.78	3.83	3.88	3.94	4.00	4.06	4.12	4.18	4.24	4.31	4.38	4.45	4.52	4.60	4.68	4.76	4.84	4.93	5.02	5.11	5.21	5.31
0.11	4.10	4.16	4.21	4.27	4.33	4.40	4.46	4.53	4.60	4.67	4.74	4.82	4.89	4.97	5.06	5.14	5.23	5.32	5.42	5.52	5.62	5.73	5.84
.12	4.47	4.53	4.60	4.66	4.73	4.80	4.87	4.94	5.01	5.09	5.17	5.25	5.34	5.43	5.52	5.61	5.71	5.81	5.91	6.02	6.13	6.25	6.37
.13	4.85	4.91	4.98	5.05	5.12	5.20	5.27	5.35	5.43	5.52	5.60	5.69	5.78	5.88	5.98	6.08	6.18	6.29	6.41	6.52	6.64	6.77	6.90
.14	5.22	5.29	5.36	5.44	5.52	5.60	5.68	5.76	5.85	5.94	6.03	6.13	6.23	6.33	6.44	6.55	6.66	6.78	6.90	7.02	7.15	7.29	7.43
.15	5.59	5.67	5.74	5.83	5.91	6.00	6.08	6.17	6.27	6.36	6.46	6.57	6.67	6.78	6.90	7.01	7.14	7.26	7.39	7.53	7.67	7.81	7.96
0.16	5.96	6.04	6.13	6.22	6.30	6.40	6.49	6.59	6.69	6.79	6.89	7.00	7.12	7.24	7.36	7.48	7.61	7.74	7.88	8.03	8.18	8.33	8.49
.17	6.34	6.42	6.51	6.60	6.70	6.79	6.89	7.00	7.10	7.21	7.33	7.44	7.56	7.69	7.81	7.95	8.09	8.23	8.38	8.53	8.69	8.85	9.03
.18	6.71	6.80	6.89	6.99	7.09	7.19	7.30	7.41	7.52	7.64	7.76	7.88	8.01	8.14	8.27	8.42	8.56	8.71	8.87	9.03	9.20	9.37	9.56
.19	7.08	7.18	7.28	7.38	7.49	7.59	7.71	7.82	7.94	8.06	8.19	8.32	8.45	8.59	8.73	8.88	9.04	9.20	9.36	9.53	9.71	9.90	10.09
.20	7.45	7.56	7.66	7.77	7.88	7.99	8.11	8.23	8.36	8.49	8.62	8.76	8.90	9.04	9.19	9.35	9.51	9.68	9.85	10.03	10.22	10.42	10.62
0.21	7.83	7.93	8.04	8.16	8.27	8.39	8.52	8.64	8.78	8.91	9.05	9.19	9.34	9.50	9.65	9.82	9.99	10.16	10.35	10.54	10.73	10.94	11.15
.22	8.20	8.31	8.43	8.55	8.67	8.79	8.92	9.06	9.19	9.33	9.48	9.63	9.79	9.95	10.11	10.29	10.47	10.65	10.84	11.04	11.24	11.46	11.68
.23	8.57	8.69	8.81	8.94	9.06	9.19	9.33	9.47	9.61	9.76	9.91	10.07	10.23	10.40	10.57	10.75	10.94	11.13	11.33	11.54	11.75	11.98	12.21
.24	8.94	9.07	9.19	9.32	9.46	9.59	9.73	9.88	10.03	10.18	10.34	10.51	10.68	10.85	11.03	11.22	11.42	11.62	11.82	12.04	12.26	12.50	12.74
.25	9.32	9.45	9.58	9.71	9.85	9.99	10.14	10.29	10.45	10.61	10.77	10.94	11.12	11.30	11.49	11.69	11.89	12.10	12.32	12.54	12.78	13.02	13.27
0.26	9.69	9.82	9.96	10.10	10.24	10.39	10.54	10.70	10.87	11.03	11.20	11.38	11.57	11.76	11.95	12.16	12.37	12.58	12.81	13.04	13.29	13.54	13.80
.27	10.06	10.20	10.34	10.49	10.64	10.79	10.95	11.11	11.28	11.46	11.63	11.82	12.01	12.21	12.41	12.63	12.84	13.07	13.30	13.55	13.80	14.06	14.33
.28	10.44	10.58	10.72	10.88	11.03	11.19	11.36	11.52	11.70	11.88	12.07	12.26	12.46	12.66	12.87	13.09	13.32	13.55	13.80	14.05	14.31	14.58	14.87
.29	10.81	10.96	11.11	11.27	11.43	11.59	11.76	11.93	12.12	12.30	12.50	12.70	12.90	13.11	13.33	13.56	13.80	14.04	14.39	14.55	14.82	15.10	15.40
.30	11.18	11.33	11.49	11.66	11.82	11.99	12.17	12.35	12.54	12.73	12.93	13.13	13.35	13.57	13.79	14.03	14.27	14.52	14.78	15.05	15.33	15.62	15.93
0.31	11.55	11.71	11.87	12.04	12.21	12.39	12.53	12.76	12.95	13.15	13.36	13.57	13.79	14.02	14.25	14.50	14.75	15.00	15.27	15.55	15.84	16.14	16.46
.32	11.93	12.09	12.26	12.43	12.61	12.79	12.98	13.17	13.37	13.58	13.79	14.01	14.24	14.47	14.71	14.96	15.22	15.49	15.77	16.06	16.35	16.67	16.99
.33	12.30	12.47	12.64	12.82	13.00	13.19	13.38	13.58	13.79	14.00	14.22	14.45	14.68	14.92	15.17	15.43	15.70	15.97	16.26	16.56	16.86	17.19	17.52
.34	12.67	12.85	13.02	13.21	13.40	13.59	13.79	13.99	14.21	14.43	14.65	14.89	15.13	15.37	15.63	15.90	16.17	16.46	16.75	17.06	17.37	17.71	18.05
.35	13.04	13.22	13.41	13.60	13.79	13.99	14.20	14.41	14.63	14.85	15.08	15.32	15.57	15.83	16.09	16.37	16.65	16.94	17.24	17.56	17.89	18.23	18.58
0.36	13.42	13.60	13.79	13.99	14.18	14.39	14.60	14.82	15.04	15.27	15.51	15.76	16.02	16.28	16.55	16.83	17.13	17.42	17.74	18.06	18.40	18.75	19.11
.37	13.79	13.98	14.17	14.37	14.58	14.79	15.01	15.23	15.46	15.70	15.94	16.20	16.46	16.73	17.01	17.30	17.60	17.91	18.23	18.56	18.91	19.27	19.64
.38	14.16	14.36	14.55	14.76	14.97	15.19	15.41	15.64	15.88	16.12	16.37	16.64	16.91	17.18	17.47	17.77	18.08	18.39	18.72	19.07	19.42	19.79	20.17
.39	14.54	14.73	14.94	15.15	15.37	15.59	15.82	16.05	16.30	16.55	16.81	17.07	17.35	17.64	17.93	18.24	18.55	18.88	19.22	19.57	19.93	20.31	20.71
.40	14.91	15.11	15.32	15.54	15.76	15.99	16.22	16.46	16.72	16.97	17.24	17.51	17.80	18.09	18.39	18.70	19.03	19.36	19.71	20.07	20.44	20.83	21.24
0.41	15.28	15.49	15.70	15.93	16.15	16.39	16.63	16.88	17.13	17.40	17.67	17.95	18.24	18.54	18.85	19.17	19.50	19.84	20.20	20.57	20.95	21.35	21.77
.42	15.65	15.87	16.09	16.32	16.55	16.79	17.03	17.29	17.55	17.82	18.10	18.39	18.69	18.99	19.31	19.64	19.98	20.33	20.69	21.07	21.46	21.87	22.30
.43	16.03	16.25	16.47	16.71	16.94	17.19	17.44	17.70	17.97	18.24	18.53	18.83	19.13	19.44	19.77	20.11	20.46	20.81	21.18	21.57	21.97	22.39	22.83
.44	16.40	16.62	16.85	17.09	17.34	17.59	17.85	18.11	18.39	18.67	18.96	19.26	19.58	19.90	20.23	20.57	20.93	21.30	21.67	22.08	22.48	22.92	23.36
.45	16.77	17.00	17.24	17.48	17.73	17.99	18.25	18.52	18.81	19.09	19.39	19.70	20.02	20.35	20.69	21.04	21.41	21.78	22.16	22.58	23.00	23.44	23.89
0.46	17.14	17.38	17.62	17.87	18.12	18.39	18.66	18.93	19.22	19.52	19.82	20.14	20.47	20.80	21.15	21.51	21.88	22.26	22.66	23.08	23.51	23.96	24.42
.47	17.52	17.76	18.00	18.26	18.52	18.79	19.06	19.35	19.64	19.94	20.25	20.58	20.91	21.25	21.61	21.98	22.36	22.75	23.15	23.58	24.02	24.48	24.95
.48	17.89	18.13	18.38	18.65	18.91	19.19	19.47	19.76	20.06	20.37	20.68	21.01	21.36	21.71	22.07	22.44	22.83	23.23	23.65	24.08	24.53	25.00	25.48
.49	18.26	18.51	18.77	19.04	19.31	19.59	19.87	20.17	20.48	20.79	21.11	21.45	21.80	22.15	22.53	22.91	23.31	23.72	24.14	24.58	25.04	25.52	26.01
.50	18.64	18.89	19.15	19.42	19.70	19.98	20.28	20.58	20.89	21.22	21.55	21.89	22.24	22.61	22.99	23.38	23.78	24.20	24.64	25.09	25.55	26.04	26.54

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VALUES OF THE LEVEL CORRECTION, *Bb*.

Argument: Declination of Star.

The Correction has the same sign as the Constant. In reflection observations the sign is reversed.

Constant.	Declination of Star.																					
	86° 35′	36′	37′	38′	39′	87° 9′	10′	11′	12′	13′	14′	15′	88° 36′	37′	38′	39′	40′	41′	42′	43′	44′	45′	46′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.11	0.11	0.11	0.11	0.12	0.13	0.13	0.14	0.14	0.14	0.14	0.14	0.26	0.27	0.27	0.27	0.28	0.28	0.28	0.29	0.29	0.30	0.30
.02	0.23	0.23	0.23	0.23	0.23	0.27	0.27	0 27	0.27	0.27	0.28	0.28	0.53	0.54	0.54	0.55	0.56	0.56	0.57	0.58	0.58	0.59	0.60
.03	0.34	0.34	0.34	0.34	0.34	0.40	0.40	0.41	0.41	0.41	0.41	0.42	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.88	0.89	0.90
.04	0.45	0.45	0.46	0.46	0.46	0.54	0.54	0.54	0.54	0.55	0.55	0.55	1.06	1.07	1.08	1.10	1.11	1.12	1.14	1.15	1.17	1.18	1.20
.05	0.57	0.57	0.57	0.57	0.58	0.67	0.67	0.68	0.68	0.68	0.69	0.69	1.32	1.34	1.35	1.37	1.39	1.40	1.42	1.44	1.46	1.48	1.50
0.06	0.68	0.68	0.68	0.69	0.69	0.80	0.81	0.81	0.82	0.82	0.83	0.83	1.59	1.61	1.63	1.65	1.66	1.69	1.71	1.73	1.75	1.77	1.80
.07	0.79	0.79	0.80	0.80	0.80	0.94	0.94	0.95	0.95	0.96	0.96	0.97	1.85	1.87	1.90	1.92	1.94	1.97	1.99	2.02	2.04	2.07	2.10
.08	0.90	0.91	0.91	0.92	0.92	1.07	1.08	1.08	1.09	1.10	1.10	1.11	2.12	2.14	2.17	2.19	2.22	2.25	2.28	2.30	2.33	2.36	2.40
.09	1.02	1.02	1.03	1.03	1.04	1.21	1.21	1.22	1.23	1.23	1.24	1.25	2.38	2.41	2.44	2.47	2.50	2.53	2.56	2.59	2.63	2.66	2.69
.10	1.13	1.13	1.14	1.14	1.15	1.34	1.35	1.35	1.36	1.37	1.38	1.38	2.65	2.68	2.71	2.74	2.78	2.81	2.84	2.88	2.92	2.96	2.99
0.11	1.24	1.25	1.25	1.26	1.26	1.47	1.48	1.49	1.50	1.51	1.51	1.52	2.91	2.95	2.98	3.02	3.05	3.09	3.13	3.17	3.21	3.25	3.29
.12	1.36	1.36	1.37	1.37	1.38	1.61	1.62	1.62	1.63	1.64	1.65	1.66	3.18	3.21	3.25	3.29	3.33	3.37	3.41	3.46	3.50	3.55	3.59
.13	1.47	1.48	1.48	1.49	1.50	1.74	1.75	1.76	1.77	1.78	1.79	1.80	3.44	3.48	3.52	3.56	3.61	3.65	3.70	3.74	3.79	3.84	3.89
.14	1.58	1.59	1.60	1.60	1.61	1.88	1.88	1.90	1.91	1.92	1.93	1.94	3.71	3.75	3.79	3.84	3.88	3.93	3.98	4.03	4.09	4.14	4.19
.15	1.70	1.70	1.71	1.72	1.72	2.01	2.02	2.03	2.04	2.06	2.07	2.08	3.97	4.02	4.06	4.11	4.16	4.21	4.27	4.32	4.38	4.43	4.49
0.16	1.81	1.82	1.82	1.83	1.84	2.14	2.15	2.17	2.18	2.19	2.20	2.22	4.24	4.28	4.34	4.39	4.44	4.49	4.55	4.61	4.67	4.73	4.79
.17	1.92	1.93	1.94	1.95	1.96	2.28	2.29	2.30	2.32	2.33	2.34	2.35	4.50	4.55	4.61	4.66	4.72	4.78	4.84	4.90	4.96	5.02	5.09
.18	2.03	2.04	2.05	2.06	2.07	2.41	2.42	2.44	2.45	2.47	2.48	2.49	4.76	4.82	4.88	4.94	5.00	5.06	5.12	5.18	5.25	5.32	5.39
.19	2.15	2.16	2.17	2.18	2.18	2.55	2.56	2.57	2.59	2.60	2.62	2.63	5.03	5.09	5.15	5.21	5.27	5.34	5.41	5.47	5.54	5.61	5.69
.20	2.26	2.27	2.28	2.29	2.30	2.68	2.69	2.71	2.72	2.74	2.75	2.77	5.29	5.36	5.42	5.48	5.55	5.62	5.69	5.76	5.84	5.91	5.99
0.21	2.37	2.38	2.39	2.40	2.42	2.81	2.83	2.84	2.86	2.88	2.89	2.91	5.56	5.62	5.69	5.76	5.83	5.90	5.97	6.05	6.13	6.21	6.29
.22	2.49	2.50	2.51	2.52	2.53	2.95	2.96	2.98	3.00	3.01	3.03	3.05	5.82	5.89	5.96	6.03	6.11	6.18	6.26	6.34	6.42	6.50	6.59
.23	2.60	2.61	2.62	2.63	2.64	3.08	3.10	3.11	3.13	3.15	3.17	3.19	6.09	6.16	6.23	6.31	6.38	6.46	6.54	6.62	6.71	6.80	6.89
.24	2.71	2.72	2.74	2.75	2.76	3.22	3.23	3.25	3.27	3.29	3.30	3.32	6.35	6.43	6.50	6.58	6.66	6.74	6.83	6.91	7.00	7.09	7.19
.25	2.82	2.84	2.85	2.86	2.87	3.35	3.36	3.39	3.40	3.42	3.44	3.46	6.62	6.69	6.77	6.86	6.94	7.02	7.11	7.20	7.30	7.39	7.48
0.26	2.94	2.95	2.96	2.98	2.99	3.48	3.50	3.52	3.54	3.56	3.58	3.60	6.88	6.96	7.05	7.13	7.22	7.31	7.40	7.49	7.59	7.68	7.78
.27	3.05	3.06	3.08	3.09	3.11	3.62	3.63	3.66	3.68	3.70	3.72	3.74	7.15	7.23	7.32	7.40	7.49	7.59	7.68	7.78	7.88	7.98	8.08
.28	3.16	3.18	3.19	3.21	3.22	3.75	3.77	3.79	3.81	3.84	3.86	3.88	7.41	7.50	7.59	7.68	7.77	7.87	7.97	8.06	8.17	8.27	8.38
.29	3.28	3.29	3.31	3.32	3.34	3.89	3.90	3.93	3.95	3.97	3.99	4.02	7.68	7.77	7.86	7.95	8.05	8.15	8.25	8.35	8.46	8.57	8.68
.30	3.39	3.40	3.42	3.44	3.45	4.02	4.03	4.06	4.09	4.11	4.13	4.16	7.94	8.03	8.13	8.23	8.32	8.43	8.54	8.64	8.75	8.86	8.98
0.31	3.50	3.52	3.53	3.55	3.57	4.15	4.17	4.20	4.22	4.25	4.27	4.29	8.21	8.30	8.40	8.50	8.60	8.71	8.82	8.93	9.05	9.16	9.28
.32	3.62	3.63	3.65	3.66	3.68	4.29	4.31	4.33	4.36	4.38	4.41	4.43	8.47	8.57	8.67	8.77	8.88	8.99	9.10	9.22	9.34	9.46	9.58
.33	3.73	3.75	3.76	3.78	3.80	4.42	4.44	4.47	4.49	4.52	4.54	4.57	8.74	8.84	8.94	9.05	9.16	9.27	9.39	9.50	9.63	9.75	9.88
.34	3.84	3.86	3.88	3.89	3.91	4.56	4.58	4.60	4.63	4.66	4.68	4.71	9.00	9.11	9.21	9.32	9.44	9.55	9.67	9.79	9.92	10.05	10.18
.35	3.96	3.97	3.99	4.01	4.03	4.69	4.71	4.74	4.77	4.80	4.82	4.85	9.26	9.37	9.48	9.60	9.71	9.83	9.96	10.08	10.21	10.34	10.48
0.36	4.07	4.09	4.10	4.12	4.14	4.82	4.85	4.87	4.90	4.93	4.96	4.99	9.53	9.64	9.75	9.87	9.99	10.12	10.24	10.37	10.50	10.64	10.78
.37	4.18	4.20	4.22	4.24	4.26	4.96	4.98	5.01	5.04	5.07	5.09	5.12	9.79	9.91	10.03	10.15	10.27	10.40	10.53	10.66	10.80	10.93	11.08
.38	4.29	4.31	4.33	4.35	4.37	5.09	5.11	5.15	5.18	5.21	5.23	5.26	10.06	10.18	10.30	10.42	10.54	10.68	10.81	10.94	11.09	11.23	11.38
.39	4.41	4.43	4.45	4.46	4.49	5.23	5.25	5.28	5.31	5.34	5.37	5.40	10.32	10.44	10.57	10.69	10.82	10.96	11.09	11.23	11.38	11.52	11.68
.40	4.52	4.54	4.56	4.58	4.60	5.36	5.38	5.42	5.45	5.48	5.51	5.54	10.59	10.71	10.84	10.97	11.10	11.24	11.38	11.52	11.67	11.82	11.98
0.41	4.63	4.65	4.67	4.69	4.71	5.49	5.52	5.55	5.58	5.62	5.65	5.68	10.85	10.98	11.11	11.24	11.38	11.52	11.66	11.81	11.96	12.12	12.28
.42	4.75	4.77	4.79	4.81	4.83	5.63	5.65	5.69	5.72	5.75	5.78	5.82	11.12	11.25	11.38	11.52	11.66	11.80	11.95	12.10	12.26	12.41	12.57
.43	4.86	4.88	4.90	4.92	4.94	5.76	5.79	5.82	5.86	5.89	5.92	5.96	11.38	11.52	11.65	11.79	11.93	12.08	12.23	12.38	12.55	12.71	12.87
.44	4.97	4.99	5.02	5.04	5.06	5.90	5.92	5.96	5.99	6.03	6.06	6.09	11.65	11.78	11.92	12.06	12.21	12.36	12.52	12.67	12.84	13.00	13.17
.45	5.08	5.11	5.13	5.15	5.17	6.03	6.06	6.09	6.13	6.16	6.20	6.23	11.91	12.05	12.19	12.34	12.49	12.64	12.80	12.96	13.13	13.30	13.47
0.46	5.20	5.22	5.24	5.27	5.29	6.16	6.19	6.23	6.27	6.30	6.33	6.37	12.18	12.32	12.47	12.61	12.76	12.93	13.09	13.25	13.42	13.59	13.77
.47	5.31	5.33	5.36	5.38	5.40	6.30	6.33	6.36	6.40	6.44	6.47	6.51	12.44	12.59	12.74	12.89	13.04	13.21	13.37	13.54	13.71	13.89	14.07
.48	5.42	5.45	5.47	5.50	5.52	6.43	6.46	6.50	6.54	6.58	6.61	6.65	12.71	12.85	13.01	13.16	13.32	13.49	13.66	13.82	14.01	14.18	14.37
.49	5.54	5.56	5.59	5.61	5.63	6.57	6.60	6.63	6.67	6.71	6.75	6.79	12.97	13.12	13.28	13.44	13.60	13.77	13.94	14.11	14.30	14.48	14.67
.50	5.65	5.67	5.70	5.73	5.75	6.70	6.73	6.77	6.81	6.85	6.89	6.92	13.23	13.39	13.55	13.71	13.88	14.05	14.22	14.40	14.59	14.78	14.97

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VALUES OF THE LEVEL CORRECTION, *Bb*.

Constant.

Argument: Declination of Star.

The Correction has the same sign as the Constant. In reflection observations the sign is reversed.

Declination of Star.

Constant.	88° 47′	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	89° 0′	1′	2′	3′	4′	5′	6′	7′	8′	9′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.30	0.31	0.31	0.32	0.32	0.33	0.33	0.33	0.34	0.35	0.35	0.36	0.36	0.37	0.37	0.38	0.39	0.39	0.40	0.41	0.42	0.42	0.43
.02	0.61	0.62	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.74	0.75	0.76	0.77	0.79	0.80	0.81	0.83	0.85	0.86
.03	0.91	0.92	0.94	0.95	0.96	0.98	0.99	1.00	1.02	1.04	1.05	1.07	1.08	1.10	1.12	1.14	1.16	1.18	1.20	1.22	1.24	1.27	1.29
.04	1.21	1.23	1.25	1.26	1.28	1.30	1.32	1.34	1.36	1.38	1.40	1.42	1.45	1.47	1.49	1.52	1.55	1.57	1.60	1.63	1.66	1.69	1.72
.05	1.52	1.54	1.56	1.58	1.60	1.63	1.65	1.67	1.70	1.72	1.75	1.78	1.81	1.84	1.87	1.90	1.93	1.97	2.00	2.04	2.08	2.11	2.16
0.06	1.82	1.84	1.87	1.90	1.92	1.95	1.98	2.01	2.04	2.07	2.10	2.14	2.17	2.21	2.24	2.28	2.32	2.36	2.40	2.44	2.49	2.54	2.59
.07	2.12	2.15	2.18	2.21	2.24	2.28	2.31	2.34	2.38	2.42	2.45	2.49	2.53	2.57	2.62	2.66	2.70	2.75	2.80	2.85	2.90	2.96	3.02
.08	2.43	2.46	2.49	2.53	2.56	2.60	2.64	2.68	2.72	2.76	2.80	2.85	2.89	2.94	2.99	3.04	3.09	3.15	3.20	3.26	3.32	3.38	3.45
.09	2.73	2.77	2.81	2.84	2.89	2.93	2.97	3.01	3.06	3.10	3.15	3.20	3.25	3.31	3.36	3.42	3.48	3.54	3.60	3.67	3.74	3.81	3.88
.10	3.03	3.08	3.12	3.16	3.21	3.25	3.30	3.35	3.40	3.45	3.50	3.56	3.62	3.67	3.74	3.80	3.86	3.93	4.00	4.07	4.15	4.23	4.31
0.11	3.34	3.38	3.43	3.48	3.53	3.58	3.63	3.68	3.74	3.80	3.85	3.91	3.98	4.04	4.11	4.18	4.25	4.33	4.40	4.48	4.56	4.65	4.74
.12	3.64	3.69	3.74	3.79	3.85	3.90	3.96	4.02	4.08	4.14	4.20	4.27	4.34	4.41	4.48	4.56	4.64	4.72	4.80	4.89	4.98	5.07	5.17
.13	3.94	4.00	4.05	4.11	4.17	4.23	4.29	4.35	4.42	4.48	4.56	4.63	4.70	4.78	4.86	4.94	5.02	5.11	5.20	5.30	5.40	5.50	5.60
.14	4.25	4.31	4.37	4.43	4.49	4.55	4.62	4.69	4.76	4.83	4.91	4.98	5.06	5.15	5.23	5.32	5.41	5.50	5.60	5.70	5.81	5.92	6.03
.15	4.55	4.61	4.68	4.74	4.81	4.88	4.95	5.02	5.10	5.18	5.26	5.34	5.42	5.51	5.60	5.70	5.80	5.90	6.00	6.11	6.22	6.34	6.46
0.16	4.85	4.92	4.99	5.06	5.13	5.20	5.28	5.36	5.44	5.52	5.61	5.69	5.79	5.88	5.98	6.08	6.18	6.29	6.40	6.52	6.64	6.76	6.90
.17	5.16	5.23	5.30	5.37	5.45	5.53	5.61	5.69	5.78	5.86	5.96	6.05	6.15	6.25	6.25	6.46	6.57	6.68	6.80	6.93	7.06	7.19	7.33
.18	5.46	5.54	5.61	5.69	5.77	5.85	5.94	6.03	6.12	6.21	6.31	6.41	6.51	6.62	6.72	6.84	6.96	7.08	7.20	7.33	7.47	7.61	7.76
.19	5.76	5.84	5.92	6.01	6.09	6.18	6.27	6.36	6.46	6.56	6.66	6.76	6.87	6.98	7.10	7.22	7.34	7.47	7.60	7.74	7.88	8.03	8.19
.20	6.07	6.15	6.24	6.32	6.41	6.50	6.60	6.70	6.80	6.90	7.01	7.12	7.23	7.35	7.47	7.60	7.73	7.86	8.00	8.15	8.30	8.46	8.62
0.21	6.37	6.46	6.55	6.64	6.73	6.83	6.93	7.03	7.14	7.24	7.36	7.47	7.59	7.72	7.85	7.98	8.11	8.26	8.40	8.56	8.72	8.88	9.05
.22	6.68	6.76	6.86	6.95	7.05	7.15	7.26	7.37	7.48	7.59	7.71	7.83	7.96	8.08	8.22	8.36	8.50	8.65	8.80	8.96	9.13	9.30	9.48
.23	6.98	7.07	7.17	7.27	7.37	7.48	7.59	7.70	7.82	7.94	8.06	8.19	8.32	8.45	8.59	8.74	8.89	9.04	9.20	9.37	9.54	9.72	9.91
.24	7.28	7.38	7.48	7.59	7.69	7.80	7.92	8.04	8.16	8.28	8.41	8.54	8.68	8.82	8.97	9.12	9.27	9.44	9.60	9.78	9.96	10.15	10.34
.25	7.59	7.69	7.80	7.90	8.02	8.13	8.25	8.37	8.50	8.62	8.76	8.90	9.04	9.19	9.34	9.50	9.66	9.83	10.00	10.19	10.38	10.57	10.78
0.26	7.89	8.00	8.11	8.22	8.34	8.46	8.58	8.70	8.83	8.97	9.11	9.25	9.40	9.56	9.71	9.88	10.05	10.22	10.41	10.59	10.79	10.99	11.21
.27	8.19	8.30	8.42	8.53	8.66	8.78	8.91	9.04	9.17	9.32	9.46	9.61	9.76	9.92	10.09	10.26	10.43	10.62	10.81	11.00	11.20	11.42	11.64
.28	8.50	8.61	8.73	8.85	8.98	9.11	9.24	9.37	9.51	9.66	9.81	9.97	10.12	10.29	10.46	10.64	10.82	11.01	11.21	11.41	11.62	11.84	12.07
.29	8.80	8.92	9.04	9.17	9.30	9.43	9.57	9.71	9.85	10.00	10.16	10.32	10.49	10.66	10.83	11.02	11.21	11.40	11.59	11.80	12.01	12.22	12.45	12.68	12.93
.30	9.10	9.23	9.35	9.48	9.62	9.76	9.90	10.04	10.19	10.35	10.51	10.68	10.85	11.02	11.21	11.40	11.59	11.80	12.01	12.22	12.45	12.68	12.93
0.31	9.41	9.53	9.67	9.80	9.94	10.08	10.23	10.38	10.53	10.70	10.86	11.03	11.21	11.39	11.58	11.78	11.98	12.19	12.41	12.63	12.86	13.11	13.36
.32	9.71	9.84	9.98	10.12	10.26	10.41	10.56	10.71	10.87	11.04	11.21	11.39	11.57	11.76	11.96	12.16	12.36	12.58	12.81	13.04	13.28	13.53	13.79
.33	10.01	10.15	10.29	10.43	10.58	10.73	10.89	11.05	11.21	11.38	11.56	11.74	11.93	12.13	12.33	12.54	12.75	12.98	13.21	13.45	13.70	13.95	14.22
.34	10.32	10.46	10.60	10.75	10.90	11.06	11.22	11.38	11.55	11.73	11.91	12.10	12.29	12.50	12.70	12.92	13.14	13.37	13.61	13.85	14.11	14.37	14.65
.35	10.62	10.76	10.91	11.06	11.22	11.38	11.55	11.72	11.89	12.08	12.26	12.46	12.66	12.86	13.08	13.30	13.52	13.76	14.01	14.26	14.52	14.80	15.08
0.36	10.92	11.07	11.22	11.38	11.54	11.71	11.88	12.05	12.23	12.42	12.61	12.81	13.02	13.23	13.45	13.68	13.91	14.16	14.41	14.67	14.94	15.22	15.52
.37	11.23	11.38	11.54	11.70	11.86	12.03	12.21	12.39	12.57	12.76	12.96	13.17	13.38	13.60	13.82	14.06	14.30	14.55	14.81	15.08	15.36	15.64	15.95
.38	11.53	11.69	11.85	12.01	12.18	12.36	12.54	12.72	12.91	13.11	13.32	13.52	13.74	13.97	14.20	14.44	14.68	14.94	15.21	15.48	15.77	16.07	16.38
.39	11.83	11.99	12.16	12.33	12.50	12.68	12.87	13.06	13.25	13.46	13.67	13.88	14.10	14.33	14.57	14.82	15.07	15.33	15.61	15.89	16.18	16.49	16.81
.40	12.14	12.30	12.47	12.64	12.82	13.01	13.20	13.39	13.59	13.80	14.02	14.24	14.46	14.70	14.94	15.20	15.46	15.73	16.01	16.30	16.60	16.91	17.24
0.41	12.44	12.61	12.78	12.96	13.14	13.33	13.53	13.73	13.93	14.14	14.37	14.59	14.83	15.07	15.32	15.58	15.84	16.12	16.41	16.71	17.02	17.33	17.67
.42	12.74	12.92	13.10	13.28	13.47	13.66	13.86	14.06	14.27	14.49	14.72	14.95	15.19	15.44	15.69	15.96	16.23	16.51	16.81	17.11	17.43	17.76	18.10
.43	13.05	13.22	13.41	13.59	13.79	13.98	14.19	14.40	14.61	14.84	15.07	15.30	15.55	15.80	16.06	16.34	16.62	16.91	17.21	17.52	17.84	18.18	18.53
.44	13.35	13.53	13.72	13.91	14.11	14.31	14.52	14.73	14.95	15.18	15.42	15.66	15.91	16.17	16.44	16.72	17.00	17.30	17.61	17.93	18.26	18.60	18.96
.45	13.65	13.84	14.03	14.22	14.43	14.63	14.85	15.07	15.29	15.52	15.77	16.02	16.27	16.54	16.81	17.10	17.39	17.69	18.01	18.34	18.68	19.03	19.40
0.46	13.96	14.15	14.34	14.54	14.75	14.96	15.18	15.40	15.63	15.87	16.12	16.37	16.63	16.90	17.19	17.48	17.77	18.09	18.41	18.74	19.08	19.45	19.83
.47	14.26	14.45	14.65	14.86	15.07	15.28	15.51	15.74	15.97	16.22	16.47	16.73	17.00	17.27	17.56	17.86	18.16	18.48	18.81	19.15	19.50	19.87	20.26
.48	14.56	14.76	14.97	15.17	15.39	15.61	15.84	16.07	16.31	16.56	16.82	17.08	17.36	17.64	17.93	18.24	18.55	18.87	19.21	19.56	19.92	20.29	20.69
.49	14.87	15.07	15.28	15.49	15.71	15.93	16.17	16.41	16.65	16.90	17.17	17.44	17.72	18.01	18.31	18.62	18.93	19.27	19.61	19.97	20.34	20.72	21.12
.50	15.17	15.38	15.59	15.80	16.03	16.26	16.50	16.74	16.99	17.25	17.52	17.79	18.08	18.37	18.68	19.00	19.32	19.66	20.01	20.37	20.75	21.14	21.55

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VALUES OF THE LEVEL CORRECTION, *Bb*., S. P.

Argument: Declination of Star.

The Constant and the Correction have opposite signs. In reflection observations the Correction has the same sign as the Constant.

Constant.	Declination of Star.																					
	86° 35′	36′	37′	38′	39′	87° 9′	10′	11′	12′	13′	14′	15′	88° 36′	37′	38′	39′	40′	41′	42′	43′	44′	45′	46′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.10	0.10	0.10	0.10	0.10	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.25	0.25	0.26	0.26	0.26	0.27	0.27	0.27	0.28	0.28	0.28
.02	0.19	0.20	0.20	0.20	0.20	0.24	0.24	0.24	0.24	0.24	0.24	0.25	0.50	0.50	0.51	0.52	0.52	0.53	0.54	0.54	0.55	0.56	0.57
.03	0.29	0.29	0.30	0.30	0.30	0.35	0.36	0.36	0.36	0.36	0.37	0.37	0.75	0.76	0.77	0.78	0.79	0.80	0.81	0.82	0.83	0.84	0.85
.04	0.39	0.39	0.39	0.40	0.40	0.47	0.48	0.48	0.48	0.49	0.49	0.49	1.00	1.01	1.02	1.03	1.05	1.06	1.08	1.09	1.10	1.12	1.14
.05	0.49	0.49	0.49	0.50	0.50	0.59	0.60	0.60	0.60	0.61	0.61	0.61	1.25	1.26	1.28	1.29	1.31	1.33	1.34	1.36	1.38	1.40	1.42
0.06	0.58	0.59	0.59	0.59	0.60	0.71	0.71	0.72	0.72	0.73	0.73	0.74	1.50	1.51	1.53	1.55	1.57	1.59	1.61	1.64	1.66	1.68	1.70
.07	0.68	0.69	0.69	0.69	0.70	0.83	0.83	0.84	0.84	0.85	0.86	0.86	1.74	1.77	1.79	1.81	1.83	1.86	1.88	1.91	1.93	1.96	1.99
.08	0.78	0.78	0.79	0.79	0.80	0.95	0.95	0.96	0.96	0.97	0.98	0.98	1.99	2.02	2.04	2.07	2.10	2.12	2.15	2.18	2.21	2.24	2.27
.09	0.88	0.88	0.89	0.89	0.90	1.06	1.07	1.08	1.09	1.09	1.10	1.11	2.24	2.27	2.30	2.33	2.36	2.39	2.42	2.45	2.49	2.52	2.56
.10	0.97	0.98	0.98	0.99	1.00	1.18	1.19	1.20	1.21	1.21	1.22	1.23	2.49	2.52	2.55	2.59	2.62	2.65	2.69	2.72	2.76	2.80	2.84
0.11	1.07	1.08	1.08	1.09	1.09	1.30	1.31	1.32	1.33	1.34	1.34	1.35	2.74	2.77	2.81	2.84	2.88	2.92	2.96	3.00	3.04	3.08	3.12
.12	1.17	1.17	1.18	1.19	1.19	1.42	1.43	1.44	1.45	1.46	1.47	1.47	2.99	3.03	3.06	3.10	3.14	3.18	3.23	3.27	3.31	3.36	3.41
.13	1.27	1.27	1.28	1.29	1.29	1.54	1.55	1.56	1.57	1.58	1.59	1.60	3.24	3.28	3.32	3.36	3.41	3.45	3.50	3.54	3.59	3.64	3.69
.14	1.36	1.37	1.38	1.39	1.39	1.66	1.67	1.68	1.69	1.70	1.71	1.72	3.49	3.53	3.58	3.62	3.67	3.72	3.76	3.82	3.87	3.92	3.97
.15	1.46	1.47	1.48	1.49	1.49	1.77	1.79	1.80	1.81	1.82	1.83	1.84	3.74	3.78	3.83	3.88	3.93	3.98	4.03	4.09	4.14	4.20	4.26
0.16	1.56	1.57	1.57	1.58	1.59	1.89	1.90	1.92	1.93	1.94	1.96	1.97	3.99	4.04	4.09	4.14	4.19	4.25	4.30	4.36	4.42	4.48	4.54
.17	1.66	1.66	1.67	1.68	1.69	2.01	2.02	2.04	2.05	2.06	2.08	2.09	4.24	4.29	4.34	4.40	4.45	4.51	4.57	4.63	4.70	4.76	4.83
.18	1.75	1.76	1.77	1.78	1.79	2.13	2.14	2.16	2.17	2.19	2.20	2.21	4.49	4.54	4.60	4.65	4.72	4.78	4.84	4.90	4.97	5.04	5.11
.19	1.85	1.86	1.87	1.88	1.89	2.25	2.26	2.28	2.29	2.31	2.32	2.33	4.74	4.79	4.85	4.91	4.98	5.04	5.11	5.18	5.25	5.32	5.39
.20	1.95	1.96	1.97	1.98	1.99	2.37	2.38	2.40	2.41	2.43	2.44	2.46	4.98	5.04	5.11	5.17	5.24	5.31	5.38	5.45	5.52	5.60	5.68
0.21	2.05	2.06	2.07	2.08	2.09	2.48	2.50	2.52	2.53	2.55	2.57	2.58	5.23	5.30	5.36	5.43	5.50	5.57	5.65	5.72	5.80	5.88	5.96
.22	2.14	2.15	2.16	2.18	2.19	2.60	2.62	2.64	2.65	2.67	2.69	2 70	5.48	5.55	5.62	5.69	5.76	5.84	5.92	6.00	6.08	6.16	6.25
.23	2.24	2.25	2.26	2.28	2.29	2.72	2.74	2.76	2.77	2.79	2.81	2.83	5.73	5.80	5.87	5.95	6.03	6.10	6.18	6.27	6.35	6.44	6.53
.24	2.34	2.35	2.36	2.38	2.39	2.84	2.86	2.88	2.89	2.91	2.93	2.95	5.98	6.05	6.13	6.21	6.29	6.37	6.45	6.54	6.63	6.72	6.81
.25	2.44	2.45	2.46	2.48	2.49	2.96	2.98	3.00	3.02	3.04	3.06	3.07	6.23	6.30	6.38	6.46	6.55	6.64	6.72	6.81	6.90	7.00	7.10
0.26	2.53	2.55	2.56	2.57	2.59	3.08	3.09	3.11	3.14	3.16	3.18	3.20	6.48	6.56	6.64	6.72	6.81	6.90	6.99	7.09	7.18	7.28	7.38
.27	2.63	2.64	2.66	2.67	2.69	3.19	3.21	3.23	3.26	3.28	3.30	3.32	6.73	6.81	6.90	6.98	7.07	7.17	7.26	7.36	7.46	7.56	7.67
.28	2.73	2.74	2.76	2.77	2.79	3.31	3.33	3.35	3.38	3.40	3.42	3.44	6.98	7.06	7.15	7.24	7.34	7.43	7.53	7.63	7.73	7.84	7.95
.29	2.82	2.84	2.85	2.87	2.89	3.43	3.45	3.47	3.50	3.52	3.54	3.56	7.23	7.31	7.41	7.50	7.60	7.70	7.80	7.90	8.01	8.12	8.23
.30	2.92	2.94	2.95	2.97	2.99	3.55	3.57	3.59	3.62	3.64	3.67	3.69	7.48	7.57	7.66	7.76	7.86	7.96	8.07	8.18	8.29	8.40	8.52
0.31	3.02	3.03	3.05	3.07	3.08	3.67	3.69	3.71	3.74	3.76	3.79	3.81	7.73	7.82	7.92	8.02	8.12	8.23	8.34	8.45	8.56	8.68	8.80
.32	3.12	3.13	3.15	3.17	3.18	3.79	3.81	3.83	3.86	3.88	3.91	3.93	7.97	8.07	8.17	8.28	8.38	8.49	8.60	8.72	8.84	8.96	9.08
.33	3.21	3.23	3.25	3.27	3.28	3.90	3.93	3.95	3.98	4.01	4.03	4.06	8.22	8.32	8.43	8.53	8.65	8.76	8.87	8.99	9.11	9.24	9.37
.34	3.31	3.33	3.35	3.37	3.38	4.02	4.05	4.07	4.10	4.13	4.15	4.18	8.47	8.57	8.68	8.79	8.91	9.02	9.14	9.26	9.39	9.52	9.65
.35	3.41	3.43	3.44	3.47	3.48	4.14	4.17	4.19	4.22	4.25	4.28	4.30	8.72	8.83	8.94	9.05	9.17	9.29	9.41	9.54	9.67	9.80	9.94
0.36	3.51	3.52	3.54	3.56	3.58	4.26	4.28	4.31	4.34	4.37	4.40	4.42	8.97	9.08	9.19	9.31	9.43	9.55	9.68	9.81	9.94	10.08	10.22
.37	3.60	3.62	3.64	3.66	3.68	4.38	4.40	4.43	4.46	4.49	4.52	4.55	9.22	9.33	9.45	9.57	9.69	9.82	9.95	10.08	10.22	10.36	10.50
.38	3.70	3.72	3.74	3.76	3.78	4.50	4.52	4.55	4.58	4.61	4.64	4.67	9.47	9.58	9.71	9.83	9.96	10.09	10.22	10.36	10.50	10.64	10.79
.39	3.80	3.82	3.84	3.86	3.88	4.62	4.64	4 67	4.70	4.73	4.76	4.79	9.72	9.83	9.96	10.09	10.22	10.35	10.49	10.63	10.77	10.92	11.07
.40	3.90	3.92	3.94	3.96	3.98	4.74	4.76	4.79	4.82	4.86	4.89	4.92	9.97	10.09	10.22	10.34	10.48	10.62	10.76	10.90	11.05	11.20	11.36
0.41	3.99	4.01	4.03	4.06	4.08	4.85	4.88	4.91	4.94	4.98	5.01	5.04	10.22	10.34	10.47	10.60	10.74	10.88	11.02	11.17	11.32	11.48	11.64
.42	4.09	4.11	4.13	4.16	4.18	4.97	5.00	5.03	5.07	5.10	5.13	5.16	10.47	10.59	10.73	10 86	11.00	11.15	11.29	11.44	11.60	11.76	11.92
.43	4.19	4.21	4.23	4.26	4.28	5.09	5.12	5.15	5.19	5.22	5.25	5.28	10.72	10.84	10.98	11.12	11.27	11.41	11.56	11.72	11.88	12.04	12.21
.44	4.29	4.31	4.33	4.36	4.38	5.21	5.24	5.27	5.31	5.34	5.38	5.41	10.96	11.10	11.24	11.38	11.53	11.68	11.83	11.99	12.15	12.32	12.49
.45	4.38	4.41	4.43	4.46	4.48	5.32	5.36	5.39	5.43	5.46	5.50	5.53	11.21	11.35	11.49	11.64	11.79	11.94	12.10	12.26	12.43	12.60	12.78
0.46	4.48	4.50	4.53	4.55	4.58	5.44	5.47	5.51	5.55	5.58	5.62	5.65	11.46	11.60	11.75	11.90	12.05	12.21	12.37	12.54	12.71	12.88	13.06
.47	4.58	4.60	4.62	4.65	4.68	5.56	5.59	5.63	5.67	5.71	5.74	5.78	11.71	11.85	12.00	12.15	12.31	12.47	12.64	12.81	12.98	13.16	13.34
.48	4.68	4.70	4.72	4.75	4.78	5.68	5.71	5.75	5.79	5.83	5.87	5.90	11.96	12.11	12.26	12.41	12.57	12.74	12.91	13.08	13.26	13.44	13.63
.49	4.77	4.80	4.82	4.85	4.88	5.80	5.83	5.87	5.91	5.95	5.99	6.02	12.21	12.36	12.51	12.67	12.84	13.00	13.18	13.35	13.53	13.72	13.91
.50	4.87	4.90	4.92	4.95	4.97	5.92	5.95	5.99	6.03	6.07	6.11	6.15	12.46	12.61	12.77	12.93	13.10	13.27	13.44	13.62	13.81	14.00	14.19

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VALUES OF THE LEVEL CORRECTION, *Bb.*, S. P.

Argument: Declination of Star.

The Constant and the Correction have opposite signs. In reflection observations the Correction has the same sign as the Constant.

Constant.	Declination of Star.																					
	88° 47′	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	89° 0′	1′	2′	3′	4′	5′	6′	7′	8′	9′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.29	0.29	0.30	0.30	0.31	0.31	0.31	0.32	0.32	0.33	0.33	0.34	0.35	0.35	0.36	0.36	0.37	0.38	0.38	0.39	0.40	0.41	0.42
.02	0.58	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70	0.72	0.73	0.74	0.76	0.77	0.78	0.80	0.81	0.83
.03	0.86	0.88	0.89	0.90	0.92	0.93	0.94	0.96	0.97	0.99	1.00	1.02	1.04	1.06	1.07	1.09	1.11	1.13	1.15	1.17	1.20	1.22	1.25
.04	1.15	1.17	1.18	1.20	1.22	1.24	1.26	1.28	1.30	1.32	1.34	1.36	1.38	1.41	1.43	1.46	1.48	1.51	1.54	1.57	1.60	1.63	1.66
.05	1.44	1.46	1.48	1.50	1.52	1.55	1.57	1.60	1.62	1.65	1.67	1.70	1.73	1.76	1.79	1.82	1.85	1.89	1.92	1.96	2.00	2.04	2.08
0.06	1.73	1.75	1.78	1.80	1.83	1.86	1.89	1.92	1.95	1.98	2.01	2.04	2.08	2.11	2.15	2.19	2.23	2.27	2.31	2.35	2.40	2.44	2.49
.07	2.02	2.04	2.07	2.10	2.14	2.17	2.20	2.23	2.27	2.31	2.34	2.38	2.42	2.46	2.51	2.55	2.60	2.64	2.69	2.74	2.80	2.85	2.91
.08	2.30	2.34	2.37	2.40	2.44	2.48	2.51	2.55	2.59	2.64	2.68	2.72	2.77	2.82	2.86	2.91	2.97	3.02	3.08	3.14	3.20	3.26	3.32
.09	2.59	2.63	2.67	2.70	2.74	2.79	2.83	2.87	2.92	2.97	3.01	3.06	3.11	3.17	3.22	3.28	3.34	3.40	3.46	3.53	3.60	3.67	3.74
.10	2.88	2.92	2.96	3.00	3.05	3.10	3.14	3.19	3.24	3.29	3.35	3.40	3.46	3.52	3.58	3.64	3.71	3.78	3.85	3.92	3.99	4.07	4.15
0.11	3.17	3.21	3.26	3.31	3.36	3.41	3.46	3.51	3.57	3.62	3.68	3.74	3.81	3.87	3.94	4.01	4.08	4.15	4.23	4.31	4.39	4.48	4.57
.12	3.45	3.50	3.55	3.61	3.66	3.72	3.77	3.83	3.89	3.95	4.02	4.08	4.15	4.22	4.30	4.37	4.45	4.53	4.62	4.70	4.79	4.89	4.98
.13	3.74	3.80	3.85	3.91	3.96	4.02	4.09	4.15	4.22	4.28	4.35	4.42	4.50	4.57	4.65	4.74	4.82	4.91	5.00	5.09	5.19	5.29	5.40
.14	4.03	4.09	4.15	4.21	4.27	4.33	4.40	4.47	4.54	4.61	4.69	4.76	4.84	4.93	5.01	5.10	5.19	5.29	5.38	5.49	5.59	5.70	5.82
.15	4.32	4.38	4.44	4.51	4.58	4.64	4.71	4.79	4.86	4.94	5.02	5.10	5.19	5.28	5.37	5.46	5.56	5.66	5.77	5.88	5.99	6.11	6.23
0.16	4.61	4.67	4.74	4.81	4.88	4.95	5.03	5.11	5.19	5.27	5.36	5.44	5.54	5.63	5.73	5.83	5.93	6.04	6.15	6.27	6.39	6.52	6.65
.17	4.89	4.96	5.04	5.11	5.18	5.26	5.34	5.43	5.51	5.60	5.69	5.79	5.88	5.98	6.09	6.19	6.31	6.42	6.54	6.66	6.79	6.92	7.06
.18	5.18	5.26	5.34	5.41	5.49	5.57	5.66	5.75	5.84	5.93	6.03	6.13	6.23	6.33	6.44	6.56	6.68	6.80	6.92	7.05	7.19	7.33	7.48
.19	5.47	5.55	5.63	5.71	5.80	5.88	5.97	6.06	6.16	6.26	6.36	6.47	6.57	6.69	6.80	6.92	7.05	7.17	7.31	7.45	7.59	7.74	7.89
.20	5.76	5.84	5.93	6.01	6.10	6.19	6.29	6.38	6.49	6.59	6.70	6.81	6.92	7.04	7.16	7.29	7.42	7.55	7.69	7.84	7.99	8.14	8.31
0.21	6.05	6.13	6.22	6.31	6.40	6.50	6.60	6.70	6.81	6.92	7.03	7.15	7.27	7.39	7.52	7.65	7.79	7.93	8.08	8.23	8.39	8.55	8.72
.22	6.33	6.42	6.52	6.61	6.71	6.81	6.91	7.02	7.13	7.25	7.37	7.49	7.61	7.74	7.88	8.01	8.16	8.31	8.46	8.62	8.79	8.96	9.14
.23	6.62	6.72	6.81	6.91	7.02	7.12	7.23	7.34	7.46	7.58	7.70	7.83	7.96	8.09	8.23	8.38	8.53	8.68	8.85	9.01	9.19	9.37	9.55
.24	6.91	7.01	7.11	7.21	7.32	7.43	7.54	7.66	7.78	7.91	8.04	8.17	8.30	8.45	8.59	8.74	8.90	9.06	9.23	9.41	9.59	9.77	9.97
.25	7.20	7.30	7.41	7.51	7.62	7.74	7.86	7.98	8.11	8.24	8.37	8.51	8.65	8.80	8.95	9.11	9.27	9.44	9.62	9.80	9.99	10.18	10.38
0.26	7.49	7.59	7.70	7.81	7.93	8.05	8.17	8.30	8.43	8.57	8.70	8.85	9.00	9.15	9.31	9.47	9.64	9.82	10.00	10.19	10.39	10.59	10.80
.27	7.77	7.88	8.00	8.11	8.24	8.36	8.49	8.62	8.76	8.90	9.04	9.19	9.34	9.50	9.67	9.84	10.01	10.20	10.38	10.58	10.79	11.00	11.22
.28	8.06	8.18	8.29	8.41	8.54	8.67	8.80	8.94	9.08	9.23	9.37	9.53	9.69	9.85	10.02	10.20	10.39	10.57	10.77	10.97	11.19	11.40	11.63
.29	8.35	8.47	8.59	8.72	8.84	8.98	9.11	9.26	9.40	9.56	9.71	9.87	10.03	10.21	10.38	10.56	10.76	10.95	11.15	11.37	11.59	11.81	12.05
.30	8.64	8.76	8.89	9.02	9.15	9.29	9.43	9.58	9.73	9.89	10.04	10.21	10.38	10.56	10.74	10.93	11.13	11.33	11.54	11.76	11.99	12.22	12.46
0.31	8.92	9.05	9.18	9.32	9.46	9.60	9.74	9.90	10.05	10.21	10.38	10.55	10.73	10.91	11.10	11.29	11.50	11.71	11.92	12.15	12.38	12.63	12.88
.32	9.21	9.34	9.48	9.62	9.76	9.91	10.06	10.21	10.38	10.54	10.71	10.89	11.07	11.26	11.46	11.66	11.87	12.08	12.31	12.54	12.78	13.03	13.29
.33	9.50	9.64	9.77	9.92	10.06	10.22	10.37	10.53	10.70	10.87	11.05	11.23	11.42	11.61	11.81	12.02	12.24	12.46	12.69	12.93	13.18	13.44	13.71
.34	9.79	9.93	10.07	10.22	10.37	10.53	10.69	10.85	11.03	11.20	11.38	11.57	11.76	11.96	12.17	12.39	12.61	12.84	13.08	13.32	13.58	13.85	14.12
.35	10.08	10.22	10.37	10.52	10.68	10.84	11.00	11.17	11.35	11.53	11.72	11.91	12.11	12.32	12.53	12.75	12.98	13.22	13.46	13.72	13.98	14.25	14.54
0.36	10.36	10.51	10.66	10.82	10.98	11.15	11.31	11.49	11.67	11.86	12.05	12.25	12.46	12.67	12.89	13.11	13.35	13.69	13.85	14.11	14.38	14.66	14.95
.37	10.65	10.80	10.96	11.12	11.28	11.46	11.63	11.81	12.00	12.19	12.59	12.59	12.80	13.02	13.25	13.48	13.72	13.97	14.23	14.50	14.78	15.07	15.37
.38	10.94	11.10	11.26	11.42	11.59	11.76	11.94	12.13	12.32	12.52	12.72	12.93	13.15	13.37	13.60	13.84	14.09	14.35	14.61	14.89	15.18	15.48	15.79
.39	11.23	11.39	11.55	11.72	11.90	12.07	12.26	12.45	12.65	12.85	13.06	13.27	13.49	13.72	13.96	14.21	14.47	14.73	15.00	15.28	15.58	15.88	16.20
.40	11.52	11.68	11.85	12.02	12.20	12.38	12.57	12.77	12.97	13.18	13.39	13.61	13.84	14.08	14.32	14.57	14.84	15.10	15.38	15.67	15.98	16.29	16.62
0.41	11 80	11.97	12.14	12.32	12.50	12.69	12.89	13.09	13.30	13.51	13.73	13.95	14.19	14.43	14.68	14.94	15.21	15.48	15.77	16.07	16.38	16.70	17.03
.42	12.09	12.26	12.44	12.62	12.81	13.00	13.20	13.41	13.62	13.84	14.06	14.29	14.53	14.78	15.04	15.30	15.58	15.86	16.15	16.46	16.78	17.11	17.45
.43	12.38	12.56	12.74	12.92	13.12	13.31	13.51	13.73	13.94	14.17	14.40	14.63	14.88	15.13	15.39	15.66	15.95	16.24	16.54	16.85	17.18	17.51	17.86
.44	12.67	12.85	13.03	13.22	13.42	13.62	13.83	14.04	14.27	14.50	14.73	14.97	15.22	15.48	15.75	16.03	16.32	16.61	16.92	17.24	17.58	17.92	18.28
.45	12.96	13.14	13.33	13.52	13.72	13.93	14.14	14.36	14.59	14.83	15.07	15.31	15.57	15.84	16.11	16.39	16.69	16.99	17.31	17.64	17.98	18.33	18.69
0.46	13.24	13.43	13.63	13.82	14.03	14.24	14.46	14.68	14.92	15.16	15.40	15.65	15.92	16.19	16.47	16.76	17.06	17.37	17.69	18.03	18.38	18.73	19.11
.47	13.53	13.72	13.92	14.12	14.34	14.55	14.77	15.00	15.24	15.49	15.74	15.99	16.26	16.54	16.83	17.12	17.43	17.75	18.08	18.42	18.78	19.14	19.52
.48	13.82	14.02	14.22	14.43	14.64	14.86	15.09	15.32	15.57	15.82	16.07	16.33	16.61	16.89	17.18	17.49	17.80	18.12	18.46	18.81	19.18	19.55	19.94
.49	14.11	14.31	14.51	14.73	14.94	15.17	15.40	15.64	15.89	16.15	16.41	16.67	16.95	17.24	17.54	17.85	18.17	18.50	18.85	19.20	19.58	19.96	20.35
.50	14.39	14.60	14.81	15.03	15.25	15.48	15.72	15.96	16.21	16.47	16.74	17.02	17.30	17.60	17.90	18.22	18.54	18.88	19.23	19.60	19.97	20.36	20.77

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VALUES OF THE COLLIMATION CORRECTION, *Cc*.

Argument: Declination of Star.

Above the Pole the Correction has the same sign as the Constant; below the Pole the Correction has the opposite sign.

Constant.	Declination of Star.																					
	86° 35′	36′	37′	38′	39′	87° 9′	10′	11′	12′	13′	14′	15′	88° 36′	37′	38′	39′	40′	41′	42′	43′	44′	45′	46′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.17	0.17	0.17	0.17	0.17	0.20	0.20	0.20	0.20	0.21	0.21	0.21	0.41	0.41	0.42	0.42	0.43	0.44	0.44	0.45	0.45	0.46	0.46
.02	0.34	0.34	0.34	0.34	0.34	0.40	0.40	0.41	0.41	0.41	0.41	0.42	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.91	0.92	0.93
.03	0.50	0.51	0.51	0.51	0.51	0.60	0.61	0.61	0.61	0.62	0.62	0.63	1.23	1.24	1.26	1.27	1.29	1.31	1.32	1.34	1.36	1.38	1.40
.04	0.67	0.67	0.68	0.68	0.68	0.80	0.81	0.81	0.82	0.82	0.83	0.83	1.64	1.66	1.68	1.70	1.72	1.74	1.76	1.79	1.81	1.83	1.86
.05	0.84	0.84	0.85	0.85	0.86	1.01	1.01	1.02	1.02	1.03	1.04	1.04	2.05	2.07	2.10	2.12	2.15	2.18	2.20	2.23	2.26	2.29	2.32
0.06	1.01	1.01	1.02	1.02	1.03	1.21	1.21	1.22	1.23	1.24	1.24	1.25	2.46	2.49	2.52	2.55	2.58	2.61	2.64	2.68	2.71	2.75	2.79
.07	1.17	1.18	1.19	1.19	1.20	1.41	1.42	1.42	1.43	1.44	1.45	1.46	2.87	2.90	2.94	2.97	3.01	3.05	3.09	3.13	3.16	3.21	3.26
.08	1.34	1.35	1.36	1.36	1.37	1.61	1.62	1.63	1.64	1.65	1.66	1.67	3.27	3.31	3.35	3.40	3.44	3.48	3.53	3.57	3.62	3.66	3.72
.09	1.51	1.52	1.52	1.53	1.54	1.81	1.82	1.83	1.84	1.85	1.86	1.88	3.68	3.73	3.77	3.82	3.87	3.92	3.97	4.02	4.07	4.12	4.18
.10	1.68	1.69	1.69	1.70	1.71	2.01	2.02	2.04	2.05	2.06	2.07	2.08	4.09	4.14	4.19	4.24	4.30	4.35	4.41	4.46	4.52	4.58	4.65
0.11	1.85	1.85	1.86	1.87	1.88	2.21	2.23	2.24	2.25	2.27	2.28	2.29	4.50	4.56	4.61	4.67	4.73	4.79	4.85	4.91	4.98	5.04	5.11
.12	2.01	2.02	2.03	2.04	2.05	2.41	2.43	2.44	2.46	2.47	2.49	2.50	4.91	4.97	5.03	5.09	5.16	5.22	5.29	5.36	5.43	5.50	5.58
.13	2.18	2.19	2.20	2.21	2.22	2.61	2.63	2.65	2.66	2.68	2.69	2.71	5.32	5.38	5.45	5.52	5.59	5.66	5.73	5.80	5.88	5.96	6.04
.14	2.35	2.36	2.37	2.38	2.40	2.82	2.83	2.85	2.87	2.88	2.90	2.92	5.73	5.80	5.87	5.94	6.02	6.09	6.17	6.25	6.33	6.42	6.50
.15	2.52	2.53	2.54	2.55	2.57	3.02	3.03	3.05	3.07	3.09	3.11	3.13	6.14	6.21	6.29	6.37	6.45	6.53	6.61	6.70	6.79	6.88	6.97
0.16	2.68	2.70	2.71	2.72	2.74	3.22	3.24	3.26	3.28	3.29	3.31	3.33	6.55	6.63	6.71	6.79	6.88	6.96	7.05	7.14	7.24	7.33	7.43
.17	2.85	2.87	2.88	2.90	2.91	3.42	3.44	3.46	3.48	3.50	3.52	3.54	6.96	7.04	7.13	7.21	7.31	7.40	7.49	7.59	7.69	7.79	7.90
.18	3.02	3.03	3.05	3.07	3.08	3.62	3.64	2.66	3.68	3.71	3.73	3.75	7.37	7.46	7.55	7.64	7.74	7.83	7.93	8.04	8.14	8.25	8.36
.19	3.19	3.20	3.22	3.24	3.25	3.82	3.84	3.87	3.89	3.91	3.94	3.96	7.78	7.87	7.97	8.06	8.17	8.27	8.38	8.48	8.60	8.71	8.83
.20	3.36	3.37	3.39	3.41	3.42	4.02	4.05	4.07	4.09	4.12	4.14	4.17	8.19	8.28	8.39	8.49	8.60	8.70	8.82	8.93	9.05	9.17	9.29
0.21	3.52	3.54	3.56	3.58	3.59	4.22	4.25	4.27	4.30	4.32	4.35	4.38	8.60	8.70	8.81	8.91	9.03	9.14	9.26	9.38	9.50	9.63	9.76
.22	3.69	3.71	3.73	3.75	3.76	4.42	4.45	4.48	4.50	4.53	4.56	4.59	9.00	9.11	9.22	9.34	9.46	9.57	9.70	9.82	9.95	10.08	10.22
.23	3.86	3.88	3.90	3.92	3.94	4.63	4.65	4.68	4.71	4.74	4.76	4.79	9.41	9.53	9.64	9.76	9.89	10.01	10.14	10.27	10.41	10.54	10.69
.24	4.03	4.05	4.07	4.09	4.11	4.83	4.85	4.88	4.91	4.94	4.97	5.00	9.82	9.94	10.06	10.19	10.32	10.44	10.58	10.72	10.86	11.00	11.15
.25	4.20	4.22	4.24	4.26	4.28	5.03	5.06	5.09	5.12	5.15	5.18	5.21	10.23	10.36	10.48	10.61	10.75	10.88	11.02	11.16	11.31	11.46	11.61
0.26	4.36	4.38	4.40	4.43	4.45	5.23	5.26	5.29	5.32	5.35	5.39	5.42	10.64	10.77	10.90	11.03	11.17	11.32	11.46	11.61	11.76	11.92	12.08
.27	4.53	4.55	4.57	4.60	4.62	5.43	5.46	5.49	5.53	5.56	5.59	5.63	11.05	11.18	11.32	11.46	11.60	11.75	11.90	12.06	12.21	12.38	12.54
.28	4.70	4.72	4.74	4.77	4.79	5.63	5.66	5.70	5.73	5.77	5.80	5.84	11.46	11.60	11.74	11.88	12.03	12.19	12.34	12.50	12.67	12.84	13.01
.29	4.87	4.89	4.91	4.94	4.96	5.83	5.87	5.90	5.94	5.97	6.01	6.04	11.87	12.01	12.16	12.31	12.46	12.62	12.78	12.95	13.12	13.29	13.47
.30	5.03	5.06	5.08	5.11	5.13	6.03	6.07	6.10	6.14	6.18	6.22	6.25	12.28	12.43	12.58	12.73	12.89	13.06	13.22	13.40	13.57	13.75	13.94
0.31	5.20	5.23	5.25	5.28	5.30	6.23	6.27	6.31	6.35	6.38	6.42	6.46	12.69	12.84	13.00	13.16	13.32	13.49	13.66	13.84	14.02	14.21	14.40
.32	5.37	5.40	5.42	5.45	5.48	6.44	6.47	6.51	6.55	6.59	6.63	6.67	13.10	13.25	13.42	13.58	13.75	13.93	14.11	14.29	14.48	14.67	14.87
.33	5.54	5.56	5.59	5.62	5.65	6.64	6.68	6.72	6.76	6.80	6.84	6.88	13.51	13.67	13.84	14.01	14.18	14.36	14.55	14.73	14.93	15.13	15.33
.34	5.71	5.73	5.76	5.79	5.82	6.84	6.88	6.92	6.96	7.00	7.04	7.09	13.92	14.08	14.26	14.43	14.61	14.80	14.99	15.18	15.38	15.59	15.80
.35	5.87	5.90	5.93	5.96	5.99	7.04	7.08	7.12	7.16	7.21	7.25	7.30	14.33	14.50	14.68	14.85	15.04	15.23	15.43	15.63	15.83	16.04	16.26
0.36	6.04	6.07	6.10	6.13	6.16	7.24	7.28	7.33	7.37	7.41	7.46	7.50	14.74	14.91	15.09	15.28	15.47	15.67	15.87	16.07	16.29	16.50	16.73
.37	6.21	6.24	6.27	6.30	6.33	7.44	7.49	7.53	7.57	7.62	7.67	7.71	15.14	15.33	15.51	15.70	15.90	16.10	16.31	16.52	16.74	16.96	17.19
.38	6.38	6.41	6.44	6.47	6.50	7.64	7.69	7.73	7.78	7.83	7.87	7.92	15.55	15.74	15.93	16.13	16.33	16.54	16.75	16.97	17.19	17.42	17.65
.39	6.54	6.58	6.61	6.64	6.67	7.84	7.89	7.94	7.98	8.03	8.08	8.13	15.96	16.15	16.35	16.55	16.76	16.97	17.19	17.41	17.64	17.88	18.12
.40	6.71	6.74	6.78	6.81	6.84	8.04	8.09	8.14	8.19	8.24	8.29	8.34	16.37	16.57	16.77	16.98	17.19	17.41	17.63	17.86	18.10	18.34	18.58
0.41	6.88	6.91	6.95	6.98	7.02	8.25	8.29	8.34	8.39	8.44	8.49	8.55	16.78	16.98	17.19	17.40	17.62	17.84	18.07	18.31	18.55	18.79	19.05
.42	7.05	7.08	7.11	7.15	7.19	8.45	8.50	8.55	8.60	8.65	8.70	8.75	17.19	17.40	17.61	17.82	18.05	18.28	18.51	18.75	19.00	19.25	19.51
.43	7.22	7.25	7.28	7.32	7.36	8.65	8.70	8.75	8.80	8.85	8.91	8.96	17.60	17.81	18.03	18.25	18.48	18.71	18.95	19.20	19.45	19.71	19.98
.44	7.38	7.42	7.45	7.49	7.53	8.85	8.90	8.95	9.01	9.06	9.12	9.17	18.01	18.22	18.45	18.67	18.91	19.15	19.40	19.65	19.91	20.17	20.44
.45	7.55	7.59	7.62	7.66	7.70	9.05	9.10	9.16	9.21	9.27	9.32	9.38	18.42	18.64	18.87	19.10	19.34	19.58	19.84	20.09	20.36	20.63	20.91
0.46	7.72	7.76	7.79	7.83	7.87	9.25	9.31	9.36	9.42	9.47	9.53	9.59	18.83	19.05	19.29	19.52	19.77	20.02	20.28	20.54	20.81	21.09	21.37
.47	7.89	7.92	7.96	8.00	8.04	9.45	9.51	9.56	9.62	9.68	9.74	9.80	19.24	19.47	19.71	19.95	20.20	20.45	20.72	20.99	21.26	21.54	21.84
.48	8.05	8.09	8.13	8.17	8.21	9.65	9.71	9.77	9.83	9.88	9.94	10.00	19.65	19.88	20.13	20.37	20.63	20.89	21.16	21.43	21.72	22.00	22.30
.49	8.22	8.26	8.30	8.34	8.38	9.85	9.91	9.97	10.03	10.09	10.15	10.21	20.06	20.30	20.55	20.80	21.06	21.32	21.60	21.88	22.17	22.46	22.77
.50	8.39	8.43	8.47	8.51	8.55	10.06	10.12	10.18	10.24	10.30	10.36	10.42	20.46	20.71	20.96	21.22	21.49	21.76	22.04	22.32	22.62	22.92	23.23

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VALUES OF THE COLLIMATION CORRECTION, *Cc*.

Argument: Declination of Star.

Above the Pole the Correction has the same sign as the Constant; below the Pole the Correction has the opposite sign.

Constant.	Declination of Star.																					
	88° 47′	48′	49′	50′	51′	52′	53′	54′	55′	56′	57′	58′	59′	89° 0′	1′	2′	3′	4′	5′	6′	7′	8′	9′
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.47	0.48	0.48	0.49	0.50	0.51	0.51	0.52	0.53	0.54	0.55	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.64	0.65	0.66	0.67
.02	0.95	0.96	0.97	0.99	1.00	1.02	1.03	1.05	1.06	1.08	1.10	1.11	1.13	1.15	1.17	1.19	1.21	1.23	1.25	1.28	1.30	1.33	1.35
.03	1.42	1.44	1.46	1.48	1.50	1.52	1.54	1.57	1.59	1.62	1.64	1.67	1.70	1.72	1.75	1.78	1.81	1.85	1.88	1.92	1.95	1.99	2.03
.04	1.88	1.91	1.94	1.96	1.99	2.02	2.05	2.08	2.12	2.15	2.18	2.22	2.26	2.29	2.33	2.37	2.41	2.45	2.50	2.55	2.60	2.65	2.70
.05	2.36	2.39	2.42	2.46	2.49	2.52	2.56	2.60	2.64	2.68	2.73	2.78	2.82	2.86	2.91	2.96	3.01	3.07	3.12	3.18	3.24	3.30	3.37
0.06	2.83	2.87	2.90	2.94	2.99	3.03	3.08	3.13	3.17	3.22	3.28	3.33	3.38	3.44	3.50	3.56	3.62	3.68	3.75	3.82	3.89	3.97	4.04
.07	3.30	3.35	3.39	3.44	3.49	3.54	3.59	3.65	3.70	3.76	3.82	3.88	3.95	4.01	4.08	4.15	4.22	4.30	4.38	4.46	4.54	4.63	4.72
.08	3.77	3.82	3.87	3.93	3.98	4.04	4.10	4.17	4.23	4.30	4.37	4.44	4.51	4.58	4.66	4.74	4.82	4.91	5.00	5.10	5.19	5.29	5.39
.09	4.24	4.30	4.36	4.42	4.48	4.54	4.62	4.69	4.76	4.83	4.91	4.99	5.08	5.16	5.25	5.34	5.43	5.53	5.62	5.73	5.84	5.95	6.07
.10	4.71	4.78	4.84	4.91	4.98	5.05	5.13	5.21	5.29	5.37	5.46	5.55	5.64	5.73	5.83	5.93	6.03	6.14	6.25	6.37	6.49	6.61	6.74
0.11	5.18	5.25	5.33	5.40	5.48	5.56	5.64	5.73	5.82	5.91	6.00	6.10	6.20	6.30	6.41	6.52	6.63	6.75	6.88	7.00	7.14	7.27	7.41
.12	5.65	5.73	5.81	5.89	5.98	6.07	6.16	6.25	6.35	6.45	6.55	6.65	6.76	6.88	6.99	7.11	7.24	7.37	7.50	7.64	7.78	7.93	8.09
.13	6.12	6.21	6.29	6.38	6.48	6.57	6.67	6.77	6.88	6.98	7.09	7.21	7.33	7.45	7.58	7.71	7.84	7.98	8.12	8.28	8.43	8.59	8.76
.14	6.59	6.69	6.78	6.88	6.98	7.08	7.18	7.29	7.40	7.52	7.64	7.76	7.89	8.02	8.16	8.30	8.44	8.59	8.75	8.91	9.08	9.26	9.44
.15	7.06	7.16	7.26	7.37	7.47	7.58	7.70	7.81	7.93	8.06	8.19	8.32	8.45	8.60	8.74	8.89	9.05	9.21	9.38	9.55	9.73	9.92	10.11
0.16	7.54	7.64	7.75	7.86	7.97	8.09	8.21	8.33	8.46	8.60	8.73	8.87	9.02	9.17	9.32	9.48	9.65	9.82	10.00	10.19	10.38	10.58	10.78
.17	8.01	8.12	8.23	8.35	8.47	8.59	8.72	8.86	8.99	9.13	9.28	9.43	9.58	9.74	9.91	10.08	10.25	10.44	10.62	10.82	11.03	11.24	11.46
.18	8.48	8.60	8.72	8.84	8.97	9.10	9.24	9.38	9.52	9.67	9.82	9.98	10.14	10.31	10.49	10.67	10.86	11.05	11.25	11.46	11.68	11.90	12.13
.19	8.95	9.07	9.20	9.33	9.47	9.61	9.75	9.90	10.05	10.21	10.37	10.54	10.71	10.89	11.07	11.26	11.46	11.66	11.88	12.10	12.33	12.56	12.81
.20	9.42	9.55	9.68	9.82	9.96	10.11	10.26	10.42	10.58	10.74	10.91	11.09	11.27	11.46	11.65	11.85	12.06	12.28	12.50	12.73	12.97	13.22	13.48
0.21	9.89	10.03	10.17	10.31	10.46	10.62	10.78	10.94	11.11	11.28	11.46	11.64	11.84	12.03	12.24	12.45	12.67	12.89	13.12	13.37	13.62	13.88	14.15
.22	10.36	10.50	10.65	10.80	10.96	11.12	11.29	11.46	11.64	11.82	12.01	12.20	12.40	12.61	12.82	13.04	13.27	13.51	13.75	14.01	14.27	14.54	14.83
.23	10.83	10.98	11.14	11.30	11.46	11.63	11.80	11.98	12.16	12.36	12.55	12.75	12.96	13.18	13.40	13.63	13.87	14.12	14.38	14.64	14.92	15.21	15.50
.24	11.30	11.46	11.62	11.79	11.96	12.13	12.31	12.50	12.69	12.89	13.10	13.31	13.53	13.75	13.98	14.22	14.48	14.73	15.00	15.28	15.57	15.87	16.18
.25	11.78	11.94	12.10	12.28	12.46	12.64	12.83	13.02	13.22	13.43	13.64	13.86	14.09	14.32	14.57	14.82	15.08	15.35	15.62	15.92	16.22	16.53	16.85
0.26	12.25	12.41	12.59	12.77	12.96	13.14	13.34	13.54	13.75	13.97	14.19	14.42	14.65	14.90	15.15	15.41	15.68	15.96	16.25	16.55	16.87	17.19	17.52
.27	12.72	12.89	13.07	13.26	13.45	13.65	13.85	14.06	14.28	14.50	14.73	14.97	15.22	15.47	15.73	16.00	16.28	16.58	16.88	17.19	17.51	17.85	18.20
.28	13.19	13.37	13.56	13.75	13.95	14.16	14.37	14.59	14.81	15.04	15.28	15.53	15.78	16.04	16.32	16.60	16.89	17.19	17.50	17.82	18.16	18.51	18.87
.29	13.66	13.85	14.04	14.24	14.45	14.66	14.88	15.11	15.34	15.58	15.83	16.08	16.34	16.62	16.90	17.19	17.49	17.80	18.12	18.46	18.81	19.17	19.55
.30	14.13	14.32	14.53	14.73	14.95	15.17	15.39	15.63	15.87	16.12	16.37	16.64	16.91	17.19	17.48	17.78	18.09	18.42	18.75	19.10	19.46	19.83	20.22
0.31	14.60	14.80	15.01	15.22	15.45	15.67	15.91	16.15	16.40	16.65	16.92	17.19	17.47	17.76	18.06	18.37	18.70	19.03	19.38	19.73	20.11	20.49	20.89
.32	15.07	15.28	15.49	15.72	15.95	16.18	16.42	16.67	16.92	17.19	17.46	17.74	18.04	18.34	18.65	18.97	19.30	19.64	20.00	20.37	20.76	21.16	21.57
.33	15.54	15.76	15.98	16.21	16.44	16.68	16.93	17.19	17.45	17.73	18.01	18.30	18.60	18.91	19.23	19.56	19.90	20.26	20.62	21.01	21.41	21.82	22.24
.34	16.01	16.23	16.47	16.70	16.94	17.19	17.45	17.71	17.98	18.26	18.55	18.85	19.16	19.48	19.81	20.15	20.51	20.87	21.25	21.64	22.06	22.48	22.92
.35	16.48	16.71	16.95	17.19	17.44	17.70	17.96	18.23	18.51	18.80	19.10	19.41	19.73	20.06	20.39	20.74	21.11	21.49	21.88	22.28	22.70	23.14	23.59
0.36	16.96	17.19	17.43	17.68	17.94	18.20	18.47	18.75	19.04	19.34	19.65	19.96	20.29	20.63	20.98	21.34	21.71	22.10	22.50	22.92	23.35	23.80	24.26
.37	17.43	17.67	17.92	18.17	18.44	18.71	18.98	19.27	19.57	19.88	20.19	20.52	20.85	21.20	21.56	21.93	22.32	22.71	23.12	23.55	24.00	24.46	24.94
.38	17.90	18.14	18.40	18.66	18.94	19.21	19.50	19.79	20.10	20.41	20.74	21.07	21.42	21.77	22.14	22.52	22.92	23.33	23.75	24.19	24.65	25.12	25.61
.39	18.37	18.62	18.88	19.15	19.43	19.72	20.01	20.32	20.63	20.95	21.28	21.63	21.98	22.35	22.73	23.12	23.52	23.94	24.38	24.83	25.30	25.78	26.29
.40	18.84	19.10	19.37	19.64	19.93	20.22	20.52	20.84	21.16	21.49	21.83	22.18	22.54	22.92	23.31	23.71	24.13	24.56	25.00	25.46	25.95	26.44	26.96
0.41	19.31	19.58	19.85	20.14	20.43	20.73	21.04	21.36	21.68	22.03	22.37	22.73	23.11	23.49	23.89	24.30	24.73	25.17	25.62	26.10	26.60	27.11	27.63
.42	19.78	20.06	20.34	20.63	20.93	21.23	21.55	21.88	22.21	22.56	22.92	23.29	23.67	24.07	24.47	24.89	25.33	25.78	26.25	26.74	27.25	27.77	28.31
.43	20.25	20.53	20.82	21.12	21.43	21.74	22.06	22.40	22.74	23.10	23.47	23.84	24.23	24.64	25.06	25.49	25.94	26.40	26.88	27.37	27.89	28.43	28.98
.44	20.72	21.01	21.30	21.61	21.93	22.24	22.58	22.92	23.27	23.64	24.01	24.40	24.80	25.21	25.64	26.08	26.54	27.01	27.50	28.01	28.54	29.09	29.66
.45	21.20	21.49	21.79	22.10	22.42	22.75	23 09	23.44	23.80	24.17	24.56	24.95	25.36	25.78	26.22	26.67	27.14	27.63	28.12	28.65	29.19	29.75	30.33
0.46	21.67	21.96	22.27	22.59	22.92	23.26	23.60	23.96	24.33	24.71	25.10	25.51	25.93	26.36	26.80	27.26	27.74	28.24	28.75	29.28	29.84	30.41	31.00
.47	22.14	22.44	22.76	23.08	23.42	23.76	24.12	24.48	24.86	25.25	25.65	26.06	26.49	26.93	27.39	27.86	28.35	28.85	29.38	29.92	30.49	31.07	31.68
.48	22.61	22.92	23.24	23.57	23.92	24.27	24.63	25.00	25.39	25.79	26.19	26.62	27.05	27.50	27.97	28.45	28.95	29.47	30.00	30.56	31.14	31.73	32.35
.49	23.08	23.40	23.73	24.06	24.42	24.77	25.14	25.52	25.92	26.32	26.74	27.17	27.62	28.08	28.55	29.04	29.55	30.08	30.62	31.19	31.79	32.39	33.07
.50	23.55	23.87	24.21	24.56	24.91	25.28	25.66	26.04	26.45	26.86	27.28	27.72	28.18	28.65	29.14	29.64	30.16	30.70	31.25	31.83	32.43	33.06	33.70

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GENERAL TABLES

OF

INSTRUMENTAL CORRECTIONS

FOR THE

REDUCTION OF TRANSIT OBSERVATIONS

AT THE

U. S. NAVAL OBSERVATORY.

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EXPLANATION OF TABLES.

In the following tables the first column on each page contains five values of the Constant, and the remaining columns contain the corresponding Corrections.

The *argument* is the *zenith distance south* of the object observed, and is found at the top of each short column of Corrections.

For the methods of determining the values of the factors A, B, and C, and the Constants a, b, c, see "Introduction to the Observations with the Transit Circle, 1870."

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TABLE I.

AZIMUTH.

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VALUES OF THE AZIMUTH CORRECTION, Aa.

Argument: Zenith Distance South.

Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.014	0.014	0.014	0.014	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.012	0.112	0.111
.02	.028	.028	.028	.027	.027	.026	.026	.025	.025	.024	.024	.023	.123	.123
.03	.042	.042	.042	.041	.040	.039	.039	.038	.037	.036	.036	.035	.135	.134
.04	.057	.056	.055	.054	.053	.052	.051	.051	.050	.049	.048	.047	.146	.145
.05	.072	.070	.069	.068	.066	.065	.064	.063	.062	.061	.060	.059	.158	.157
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.01	0.011	0.011	0.111	0.011	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009	0.009	0.009
.02	.022	.022	.122	.021	.021	.021	.020	.020	.020	.019	.019	.019	.018	.018
.03	.033	.033	.132	.032	.031	.031	.030	.030	.029	.029	.028	.028	.027	.027
.04	.045	.044	.143	.042	.042	.041	.040	.040	.039	.038	.038	.037	.036	.036
.05	.056	.055	.154	.053	.052	.051	.050	.050	.049	.048	.047	.046	.046	.045
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.01	0.009	0.008	0.008	0.008	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005	0.005
.02	.017	.017	.016	.016	.015	.015	.014	.014	.013	.012	.012	.011	.011	.010
.03	.026	.025	.024	.023	.022	.022	.021	.020	.019	.018	.017	.017	.016	.015
.04	.035	.034	.032	.031	.030	.029	.028	.027	.026	.025	.024	.022	.021	.020
.05	.043	.042	.040	.039	.038	.036	.035	.034	.032	.031	.029	.028	.027	.025
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.01	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002
.02	.010	.009	.008	.008	.007	.007	.006	.006	.006	.005	.005	.005	.004	.004
.03	.014	.014	.013	.012	.011	.010	.009	.009	.008	.008	.008	.007	.007	.006
.04	.019	.018	.017	.016	.014	.013	.013	.012	.011	.011	.010	.009	.009	.008
.05	.024	.022	.021	.019	.018	.017	.016	.015	.014	.013	.012	.012	.011	.010
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.01	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001
.02	.004	.003	.003	.003	.002	.002	.001	.001	.000	.000	.000	.001	.001	.002
.03	.005	.005	.004	.004	.003	.002	.002	.001	.001	.000	.001	.001	.002	.003
.04	.007	.006	.006	.005	.004	.003	.002	.002	.001	.000	.001	.002	.003	.004
.05	.009	.008	.007	.006	.005	.004	.003	.002	.001	.000	.001	.002	.004	.005
	353°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.01	0.001	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.004	0.004	0.004	0.005	0.005	0.006
.02	.002	.003	.004	.004	.004	.005	.006	.007	.007	.008	.009	.009	.010	.011
.03	.004	.004	.005	.006	.007	.008	.009	.010	.011	.012	.013	.014	.016	.017
.04	.005	.006	.007	.008	.009	.011	.012	.013	.015	.016	.017	.019	.021	.022
.05	.006	.007	.009	.010	.012	.013	.015	.016	.018	.020	.022	.024	.026	.028
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.01	0.006	0.007	0.007	0.008	0.008	0.009	0.010	0.010	0.011	0.012	0.013	0.014	0.015	0.016
.02	.012	.013	.014	.015	.016	.018	.019	.021	.022	.024	.026	.028	.030	.032
.03	.018	.020	.021	.023	.025	.027	.029	.031	.033	.036	.039	.042	.045	.049
.04	.024	.026	.028	.031	.033	.035	.038	.041	.045	.048	.052	.056	.060	.065
.05	.031	.033	.036	.038	.042	.045	.048	.052	.056	.060	.064	.069	.075	.081
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.01	0.018	0.019	0.021	0.022	0.025	0.027	0.030	0.033	0.037	0.042	0.048	0.056	0.066	0.082
.02	.035	.038	.042	.045	.050	.055	.060	.067	.075	.085	.097	.112	.134	.164
.03	.053	.057	.062	.068	.074	.082	.090	.100	.112	.127	.146	.168	.200	.246
.04	.070	.076	.083	.091	.099	.109	.120	.134	.150	.170	.194	.224	.267	.327
.05	.088	.095	.103	.112	.123	.136	.150	.167	.187	.211	.242	.280	.332	.408
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.01	0.071	0.062	0.056	0.051	0.047	0.043	0.040	0.038	0.036	0.034	0.032	0.030	0.029	0.028
.02	.142	.125	.113	.102	.094	.087	.081	.076	.071	.068	.064	.061	.058	.056
.03	.212	.188	.168	.153	.140	.130	.121	.113	.107	.101	.096	.092	.087	.084
.04	.283	.250	.224	.204	.187	.173	.161	.151	.142	.135	.128	.122	.116	.111
.05	.353	.312	.280	.254	.233	.216	.201	.189	.178	.168	.159	.152	.145	.139
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.01	0.027	0.026	0.025	0.024	0.023	0.022	0.022	0.021	0.020	0.020	0.019	0.019	0.019	0.018
.02	.054	.051	.050	.048	.046	.045	.043	.042	.041	.040	.039	.038	.037	.036
.03	.080	.077	.074	.072	.069	.067	.065	.063	.061	.060	.058	.057	.055	.054
.04	.107	.103	.099	.095	.092	.089	.087	.084	.082	.079	.077	.075	.073	.072
.05	.133	.128	.123	.119	.115	.112	.108	.105	.102	.099	.096	.094	.092	.089

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VALUES OF THE AZIMUTH CORRECTION, *Aa*.

Argument: Zenith Distance South.

Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.06	0.086	0.085	0.083	0.081	0.080	0.079	0.077	0.076	0.074	0.073	0.072	0.071	0.070	0.068
.07	.101	.099	.097	.095	.093	.092	.090	.088	.087	.085	.083	.082	.081	.080
.08	.115	.113	.110	.109	.106	.105	.102	.101	.099	.098	.095	.094	.093	.091
.09	.130	.127	.124	.122	.120	.118	.115	.113	.112	.110	.107	.106	.104	.103
.10	.144	.141	.138	.136	.133	.131	.128	.126	.124	.122	.120	.118	.116	.114
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.06	0.067	0.066	0.065	0.064	0.062	0.061	0.060	0.059	0.059	0.058	0.057	0.056	0.055	0.054
.07	.078	.076	.075	.074	.073	.072	.071	.069	.069	.067	.066	.065	.064	.062
.08	.090	.087	.086	.085	.083	.082	.081	.079	.078	.077	.075	.074	.073	.071
.09	.101	.098	.097	.095	.093	.092	.091	.089	.088	.086	.084	.084	.082	.080
.10	.112	.110	.108	.106	.104	.103	.101	.099	.098	.096	.094	.093	.091	.089
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.06	0.052	0.052	0.049	0.047	0.045	0.043	0.042	0.040	0.038	0.037	0.035	0.034	0.032	0.030
.07	.061	.059	.057	.055	.052	.050	.048	.047	.045	.043	.041	.039	.037	.035
.08	.070	.067	.065	.062	.060	.058	.056	.054	.051	.049	.047	.045	.042	.040
.09	.078	.076	.073	.070	.068	.065	.063	.060	.058	.056	.053	.050	.048	.046
.10	.087	.084	.081	.078	.075	.072	.070	.067	.064	.062	.059	.056	.053	.051
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.06	0.029	0.027	0.025	0.023	0.022	0.020	0.019	0.018	0.017	0.016	0.015	0.014	0.013	0.012
.07	.034	.032	.029	.027	.025	.023	.022	.021	.020	.019	.018	.016	.015	.014
.08	.038	.036	.034	.031	.029	.026	.025	.024	.023	.022	.020	.019	.018	.016
.09	.043	.040	.038	.035	.032	.030	.028	.027	.025	.024	.022	.021	.019	.018
.10	.048	.045	.042	.039	.036	.033	.032	.030	.028	.027	.025	.023	.022	.020
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.06	0.011	0.010	0.008	0.007	0.006	0.005	0.004	0.003	0.001	0.000	0.001	0.003	0.004	0.006
.07	.013	.011	.010	.009	.007	.006	.005	.003	.002	.000	.002	.003	.005	.007
.08	.014	.013	.012	.010	.008	.007	.005	.004	.002	.000	.002	.004	.006	.008
.09	.016	.014	.013	.011	.009	.008	.006	.004	.002	.000	.002	.004	.006	.009
.10	.018	.016	.014	.012	.010	.008	.006	.004	.002	.000	.002	.005	.007	.010
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.06	0.007	0.009	0.010	0.012	0.014	0.016	0.018	0.020	0.022	0.024	0.026	0.029	0.031	0.033
.07	.008	.010	.012	.014	.016	.018	.021	.023	.025	.028	.031	.034	.036	.040
.08	.010	.012	.014	.016	.018	.021	.023	.026	.029	.032	.035	.038	.042	.045
.09	.011	.013	.016	.018	.021	.023	.027	.030	.033	.036	.040	.043	.047	.051
.10	.012	.015	.018	.020	.023	.026	.030	.033	.036	.040	.044	.048	.052	.056
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.06	0.037	0.040	0.043	0.046	0.050	0.054	0.058	0.062	0.067	0.072	0.078	0.084	0.090	0.097
.07	.043	.046	.050	.054	.058	.062	.067	.072	.077	.083	.090	.097	.105	.113
.08	.049	.053	.057	.062	.066	.071	.077	.083	.088	.095	.103	.111	.120	.130
.09	.055	.059	.064	.069	.075	.080	.086	.093	.100	.108	.116	.125	.135	.146
.10	.061	.066	.071	.077	.083	.089	.096	.103	.111	.120	.129	.139	.150	.162
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.06	0.105	0.114	0.124	0.135	0.148	0.163	0.180	0.200	0.224	0.253	0.290	0.337	0.399	0.489
.07	.122	.133	.144	.158	.173	.190	.210	.234	.262	.296	.338	.393	.466	.571
.08	.140	.152	.165	.180	.198	.217	.240	.267	.299	.338	.387	.449	.532	.652
.09	.158	.171	.186	.202	.222	.244	.270	.301	.337	.380	.436	.505	.599	.734
.10	.175	.190	.207	.226	.247	.272	.300	.334	.374	.423	.484	.561	.665	.816
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.06	0.423	0.374	0.335	0.305	0.280	0.259	0.241	0.226	0.213	0.202	0.191	0.182	0.174	0.167
.07	.494	.436	.391	.356	.327	.302	.281	.264	.249	.235	.223	.212	.203	.194
.08	.564	.499	.447	.407	.373	.346	.322	.302	.284	.269	.255	.243	.232	.222
.09	.635	.561	.503	.458	.420	.389	.362	.339	.320	.302	.287	.273	.261	.250
.10	.706	.624	.560	.509	.467	.432	.402	.377	.355	.336	.319	.304	.290	.278
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.06	0.160	0.154	0.148	0.143	0.138	0.134	0.130	0.126	0.122	0.119	0.116	0.113	0.110	0.107
.07	.186	.179	.173	.166	.161	.156	.151	.147	.143	.139	.135	.132	.128	.125
.08	.213	.205	.198	.190	.184	.178	.173	.168	.163	.158	.154	.150	.146	.143
.09	.239	.231	.222	.214	.207	.201	.194	.189	.183	.178	.174	.169	.165	.161
.10	.267	.256	.247	.238	.230	.223	.216	.210	.204	.198	.193	.188	.183	.179

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VALUE OF THE AZIMUTH CORRECTION, *Aa*.

Argument: Zenith Distance South.

Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.11	0.158	0.155	0.152	0.150	0.146	0.144	0.141	0.139	0.136	0.134	0.132	0.129	0.127	0.125
.12	.173	.169	.166	.163	.160	.157	.154	.151	.149	.146	.143	.141	.138	.136
.13	.187	.183	.179	.177	.173	.170	.166	.164	.161	.158	.155	.152	.150	.147
.14	.202	.197	.193	.190	.186	.183	.179	.176	.174	.170	.167	.164	.161	.159
.15	.216	.212	.207	.204	.199	.196	.192	.189	.186	.183	.179	.176	.173	.170
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.11	0.122	0.120	0.118	0.117	0.115	0.113	0.111	0.109	0.107	0.105	0.104	0.102	0.100	0.099
.12	.133	.131	.129	.127	.125	.123	.121	.119	.117	.115	.113	.111	.109	.108
.13	.145	.142	.140	.138	.135	.134	.131	.129	.127	.125	.123	.121	.119	.117
.14	.156	.153	.151	.148	.146	.144	.141	.139	.137	.134	.132	.130	.128	.126
.15	.168	.164	.162	.159	.156	.154	.152	.149	.146	.144	.142	.139	.137	.135
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.11	0.096	0.092	0.089	0.086	0.082	0.079	0.077	0.074	0.070	0.067	0.065	0.062	0.058	0.056
.12	.104	.101	.097	.094	.090	.086	.083	.080	.077	.074	.071	.067	.064	.061
.13	.113	.109	.105	.101	.098	.094	.091	.087	.083	.080	.077	.073	.069	.066
.14	.121	.118	.113	.109	.105	.101	.098	.094	.090	.086	.082	.078	.075	.071
.15	.130	.126	.121	.117	.112	.108	.104	.100	.096	.092	.088	.084	.080	.076
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.11	0.053	0.050	0.046	0.043	0.040	0.036	0.034	0.033	0.031	0.030	0.028	0.025	0.023	0.022
.12	.058	.054	.050	.047	.043	.040	.038	.036	.034	.032	.030	.028	.026	.024
.13	.062	.058	.055	.051	.047	.043	.041	.039	.036	.034	.032	.030	.028	.026
.14	.067	.063	.059	.055	.051	.046	.044	.042	.039	.037	.035	.033	.030	.028
.15	.072	.068	.063	.059	.054	.050	.047	.045	.042	.040	.038	.035	.032	.030
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.11	0.020	0.018	0.015	0.014	0.012	0.009	0.007	0.005	0.002	0.000	0.002	0.005	0.008	0.010
.12	.022	.020	.017	.015	.013	.011	.008	.005	.003	.000	.003	.006	.008	.011
.13	.024	.021	.019	.016	.014	.011	.008	.006	.003	.000	.003	.006	.009	.012
.14	.025	.022	.020	.018	.015	.012	.009	.006	.003	.000	.003	.006	.010	.013
.15	.027	.024	.022	.019	.016	.013	.010	.007	.003	.000	.003	.007	.010	.014
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.11	0.013	0.016	0.019	0.022	0.025	0.029	0.032	0.036	0.040	0.044	0.048	0.053	0.057	0.062
.12	.014	.018	.021	.024	.028	.032	.035	.040	.044	.048	.053	.058	.063	.068
.13	.016	.019	.023	.026	.030	.034	.038	.043	.047	.052	.057	.062	.068	.073
.14	.017	.020	.024	.028	.033	.037	.041	.046	.051	.056	.061	.067	.073	.079
.15	.018	.022	.026	.031	.035	.040	.044	.049	.055	.060	.066	.072	.078	.085
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.11	0.067	0.073	0.078	0.085	0.091	0.098	0.106	0.113	0.122	0.132	0.142	0.153	0.165	0.178
.12	.073	.079	.086	.092	.100	.107	.115	.124	.133	.143	.154	.166	.179	.194
.13	.080	.086	.093	.100	.108	.116	.125	.134	.144	.155	.167	.180	.195	.211
.14	.086	.093	.100	.108	.116	.125	.134	.145	.156	.168	.180	.195	.210	.227
.15	.092	.099	.107	.116	.125	.134	.144	.155	.166	.179	.194	.208	.225	.243
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.11	0.192	0.209	0.227	0.248	0.272	0.298	0.330	0.367	0.411	0.465	0.532	0.617	0.731	0.898
.12	.210	.228	.248	.270	.296	.325	.360	.400	.448	.507	.580	.674	.797	0.980
.13	.228	.247	.269	.292	.321	.352	.390	.434	.486	.550	.629	.730	.864	1.061
.14	.245	.266	.289	.315	.346	.379	.420	.467	.523	.592	.677	.786	.930	1.143
.15	.263	.285	.310	.338	.370	.407	.450	.500	.561	.634	.725	.842	.997	1.225
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.11	0.777	0.686	0.616	0.560	0.514	0.475	0.443	0.415	0.391	0.370	0.351	0.334	0.319	0.305
.12	0.848	.748	.672	.610	.560	.518	.483	.452	.426	.403	.383	.365	.348	.333
.13	0.918	.811	.728	.661	.607	.562	.523	.490	.462	.437	.415	.395	.377	.361
.14	0.989	.873	.784	.712	.653	.605	.564	.528	.497	.470	.446	.425	.406	.389
.15	1.059	.936	.840	.763	.700	.648	.604	.566	.533	.504	.478	.456	.435	.417
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.11	0.293	0.282	0.272	0.262	0.253	0.245	0.238	0.231	0.224	0.218	0.212	0.207	0.201	0.196
.12	.320	.307	.296	.286	.276	.268	.259	.252	.245	.238	.231	.226	.220	.214
.13	.347	.333	.321	.309	.299	.290	.281	.273	.265	.257	.250	.244	.238	.232
.14	.373	.358	.346	.333	.322	.312	.302	.294	.285	.277	.270	.263	.256	.250
.15	.400	.384	.370	.357	.345	.335	.324	.315	.306	.297	.289	.282	.274	.268

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VALUES OF THE AZIMUTH CORRECTION, *Aa*.

Argument: Zenith Distance South.

Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.16	0.230	0.226	0.221	0.218	0.213	0.209	0.205	0.202	0.198	0.195	0.191	0.188	0.185	0.181
.17	.245	.240	.235	.231	.226	.222	.218	.214	.211	.207	.203	.200	.197	.193
.18	.259	.254	.248	.245	.239	.235	.230	.227	.223	.220	.215	.212	.209	.205
.19	.274	.268	.262	.258	.253	.249	.243	.239	.236	.232	.227	.223	.220	.216
.20	.287	.282	.276	.271	.266	.261	.256	.252	.248	.244	.239	.235	.231	.227
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.16	0.178	0.174	0.172	0.170	0.167	0.164	0.162	0.159	0.156	0.153	0.151	0.148	0.146	0.143
.17	.189	.185	.183	.180	.177	.174	.172	.169	.166	.163	.160	.158	.155	.152
.18	.201	.196	.194	.191	.187	.185	.182	.178	.176	.173	.170	.167	.164	.161
.19	.212	.207	.205	.201	.198	.195	.192	.188	.185	.182	.179	.176	.173	.170
.20	.223	.219	.216	.212	.208	.205	.202	.198	.195	.192	.189	.186	.183	.179
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.16	0.139	0.134	0.129	0.125	0.120	0.116	0.112	0.107	0.103	0.099	0.094	0.090	0.086	0.081
.17	.148	.143	.138	.133	.128	.123	.118	.114	.109	.105	.100	.095	.091	.086
.18	.157	.151	.145	.140	.135	.130	.125	.120	.115	.111	.106	.101	.096	.091
.19	.165	.160	.154	.148	.143	.137	.132	.127	.122	.117	.112	.106	.101	.096
.20	.173	.168	.162	.156	.150	.145	.139	.134	.129	.123	.118	.112	.107	.101
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.16	0.077	0.072	0.067	0.063	0.058	0.053	0.050	0.048	0.045	0.043	0.040	0.037	0.035	0.032
.17	.082	.076	.071	.066	.061	.056	.054	.051	.048	.045	.043	.040	.037	.034
.18	.086	.081	.076	.070	.065	.059	.057	.054	.051	.048	.045	.042	.039	.036
.19	.091	.086	.080	.074	.069	.063	.060	.057	.054	.051	.048	.044	.041	.038
.20	.096	.090	.084	.076	.072	.066	.063	.060	.057	.053	.050	.047	.043	.040
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.16	0.029	0.026	0.023	0.020	0.017	0.014	0.010	0.007	0.004	0.000	0.004	0.007	0.011	0.015
.17	.031	.027	.024	.021	.018	.014	.011	.007	.004	.000	.004	.007	.012	.016
.18	.033	.029	.026	.022	.019	.015	.012	.008	.004	.000	.004	.008	.013	.017
.19	.034	.031	.027	.024	.020	.016	.012	.008	.004	.000	.004	.009	.013	.018
.20	.036	.033	.029	.025	.021	.017	.013	.009	.005	.000	.004	.009	.014	.019
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.16	0.019	0.023	0.028	0.033	0.037	0.042	0.047	0.053	0.058	0.064	0.070	0.077	0.083	0.090
.17	.020	.025	.030	.035	.040	.045	.050	.056	.062	.068	.075	.081	.088	.096
.18	.022	.026	.031	.037	.042	.047	.053	.059	.065	.072	.079	.086	.094	.102
.19	.023	.028	.033	.039	.044	.050	.056	.062	.069	.076	.083	.091	.099	.107
.20	.024	.029	.035	.041	.047	.053	.059	.066	.073	.080	.088	.096	.104	.113
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.16	0.098	0.106	0.114	0.123	0.133	0.143	0.154	0.165	0.178	0.191	0.206	0.222	0.240	0.259
.17	.104	.112	.121	.131	.141	.152	.163	.176	.189	.203	.219	.236	.254	.275
.18	.110	.119	.128	.139	.149	.160	.173	.186	.200	.213	.232	.250	.269	.291
.19	.116	.126	.136	.147	.158	.169	.182	.196	.211	.227	.245	.264	.285	.308
.20	.122	.132	.143	.154	.166	.178	.192	.207	.222	.239	.257	.277	.300	.324
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.16	0.280	0.304	0.331	0.360	0.395	0.434	0.480	0.534	0.598	0.676	0.773	0.898	1.063	1.306
.17	.298	.323	.351	.383	.420	.461	.510	.567	.635	.718	.822	0.954	1.130	1.388
.18	.315	.342	.372	.406	.445	.488	.540	.600	.673	.761	.870	1.010	1.196	1.460
.19	.333	.361	.392	.428	.469	.515	.570	.634	.710	.803	.918	1.066	1.263	1.541
.20	.351	.380	.414	.451	.494	.543	.600	.667	.747	.845	.967	1.123	1.330	1.633
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.16	1.130	0.998	0.896	0.814	0.747	0.692	0.644	0.604	0.568	0.538	0.510	0.486	0.464	0.444
.17	1.201	1.061	0.952	0.865	.794	.735	.684	.641	.604	.571	.542	.516	.493	.472
.18	1.271	1.123	1.008	0.916	.840	.778	.725	.679	.639	.605	.574	.547	.522	.500
.19	1.342	1.185	1.064	0.967	.887	.821	.765	.717	.675	.638	.606	.577	.551	.528
.20	1.413	1.248	1.120	1.018	.934	.864	.805	.755	.711	.672	.638	.607	.580	.555
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.16	0.427	0.410	0.395	0.381	0.368	0.357	0.346	0.336	0.326	0.317	0.308	0.301	0.293	0.286
.17	.453	.435	.420	.405	.391	.379	.367	.357	.347	.337	.328	.320	.311	.304
.18	.480	.461	.445	.428	.414	.401	.389	.378	.367	.356	.347	.338	.329	.322
.19	.507	.486	.469	.452	.437	.424	.410	.398	.387	.376	.366	.357	.348	.339
.20	.533	.513	.494	.476	.460	.446	.432	.419	.407	.396	.386	.376	.366	.357

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VALUES OF THE AZIMUTH CORRECTION, *Aa*.

Argument: Zenith Distance South.

Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.21	0.302	0.296	0.290	0.286	0.279	0.275	0.269	0.265	0.260	0.256	0.250	0.247	0.243	0.239
.22	.317	.310	.304	.299	.293	.288	.282	.277	.273	.268	.262	.259	.254	.250
.23	.331	.324	.317	.313	.306	.301	.294	.290	.285	.280	.274	.271	.266	.261
.24	.346	.338	.331	.326	.319	.314	.307	.302	.298	.292	.286	.282	.277	.273
.25	.360	.352	.345	.340	.332	.327	.320	.315	.310	.305	.298	.294	.289	.284
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.21	0.234	0.229	0.226	0.223	0.219	0.215	0.212	0.208	0.205	0.201	0.198	0.195	0.192	0.188
.22	.245	.240	.237	.233	.229	.225	.222	.218	.215	.211	.208	.204	.201	.197
.23	.257	.251	.248	.244	.240	.236	.232	.228	.224	.221	.217	.213	.210	.206
.24	.268	.262	.259	.254	.250	.246	.242	.238	.234	.230	.227	.223	.219	.215
.25	.279	.273	.269	.265	.260	.256	.252	.248	.244	.240	.236	.232	.228	.224
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.21	0.182	0.176	0.170	0.164	0.158	0.152	0.146	0.141	0.135	0.129	0.123	0.118	0.112	0.106
.22	.191	.184	.178	.172	.165	.159	.153	.148	.141	.136	.129	.123	.117	.111
.23	.200	.193	.186	.179	.173	.166	.160	.154	.148	.142	.135	.129	.123	.117
.24	.208	.201	.194	.187	.180	.174	.167	.161	.154	.148	.141	.135	.128	.122
.25	.217	.209	.202	.195	.188	.181	.174	.168	.161	.154	.147	.140	.134	.127
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.21	0.101	0.095	0.088	0.082	0.076	0.070	0.066	0.063	0.059	0.056	0.053	0.049	0.045	0.042
.22	.105	.099	.093	.086	.080	.073	.069	.066	.062	.059	.055	.051	.048	.044
.23	.110	.104	.097	.090	.083	.076	.072	.069	.065	.061	.058	.054	.050	.046
.24	.115	.108	.101	.094	.087	.079	.076	.072	.068	.064	.060	.056	.052	.048
.25	.120	.113	.105	.098	.090	.083	.079	.075	.071	.067	.063	.058	.054	.050
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.21	0.038	0.034	0.030	0.026	0.022	0.018	0.014	0.009	0.005	0.000	0.005	0.009	0.014	0.020
.22	.040	.036	.032	.027	.023	.019	.014	.010	.005	.000	.005	.010	.014	.021
.23	.042	.037	.033	.029	.024	.020	.015	.010	.005	.000	.005	.010	.015	.022
.24	.043	.039	.035	.030	.025	.020	.016	.010	.006	.000	.006	.010	.016	.023
.25	.045	.041	.036	.031	.026	.021	.016	.011	.006	.000	.006	.011	.016	.024
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.21	0.025	0.031	0.037	0.043	0.049	0.055	0.062	0.069	0.076	0.084	0.092	0.101	0.109	0.119
.22	.027	.032	.039	.045	.051	.058	.065	.072	.080	.088	.097	.105	.115	.124
.23	.028	.034	.040	.047	.054	.061	.068	.076	.084	.092	.101	.110	.120	.130
.24	.029	.035	.042	.049	.056	.063	.071	.079	.087	.096	.105	.115	.125	.136
.25	.030	.037	.044	.051	.058	.066	.074	.082	.091	.100	.110	.120	.130	.141
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.21	0.128	0.139	0.150	0.162	0.174	0.187	0.202	0.217	0.233	0.251	0.271	0.292	0.315	0.340
.22	.135	.146	.157	.169	.183	.196	.211	.228	.244	.263	.284	.306	.330	.356
.23	.141	.152	.164	.177	.191	.205	.221	.237	.255	.275	.297	.320	.345	.373
.24	.147	.159	.171	.185	.199	.214	.231	.248	.266	.287	.310	.334	.360	.389
.25	.153	.166	.179	.192	.208	.223	.240	.259	.277	.299	.322	.348	.375	.405
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.21	0.368	0.399	0.434	0.471	0.518	0.570	0.630	0.700	0.785	0.887	1.015	1.179	1.395	1.714
.22	.385	.418	.455	.494	.543	.597	.660	.734	.822	0.930	1.063	1.235	1.462	1.796
.23	.403	.437	.476	.517	.568	.624	.690	.767	.860	0.972	1.112	1.291	1.528	1.878
.24	.420	.456	.496	.539	.593	.651	.720	.800	.897	1.014	1.160	1.347	1.595	1.960
.25	.438	.475	.517	.561	.618	.679	.750	.834	.935	1.056	1.208	1.403	1.661	2.041
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.21	1.483	1.310	1.176	1.068	0.981	0.908	0.845	0.792	0.746	0.706	0.670	0.638	0.609	0.583
.22	1.554	1.373	1.232	1.119	1.027	0.951	0.886	.830	.782	.739	.702	.668	.638	.611
.23	1.624	1.435	1.288	1.170	1.074	0.994	0.926	.868	.817	.773	.733	.698	.667	.639
.24	1.695	1.497	1.344	1.221	1.121	1.037	0.966	.906	.853	.806	.765	.729	.696	.666
.25	1.766	1.560	1.400	1.272	1.168	1.080	1.006	.943	.888	.840	.797	.759	.725	.694
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.21	0.560	0.538	0.519	0.500	0.483	0.468	0.454	0.440	0.428	0.416	0.405	0.394	0.384	0.375
.22	.587	.563	.543	.524	.506	.491	.475	.461	.448	.436	.424	.413	.403	.393
.23	.614	.589	.568	.547	.529	.513	.497	.482	.468	.455	.443	.432	.421	.411
.24	.640	.615	.593	.571	.552	.535	.518	.503	.488	.475	.463	.451	.439	.429
.25	.667	.641	.617	.595	.575	.558	.540	.524	.509	.495	.482	.470	.458	.447

Hosted by Google

VALUES OF THE AZIMUTH CORRECTION, Aa.

Argument: Zenith Distance South.

Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.26	0.374	0.367	0.359	0.354	0.346	0.340	0.333	0.328	0.322	0.317	0.310	0.307	0.301	0.296
.27	.389	.381	.373	.367	.359	.353	.346	.340	.335	.329	.322	.318	.312	.307
.28	.403	.395	.386	.381	.372	.366	.358	.353	.347	.341	.334	.329	.324	.318
.29	.418	.409	.400	.394	.386	.380	.371	.365	.360	.353	.346	.341	.335	.330
.30	.430	.422	.415	.407	.399	.392	.384	.378	.372	.365	.358	.353	.347	.341
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.26	0.290	0.284	0.279	0.275	0.271	0.267	0.263	0.258	0.254	0.249	0.245	0.241	0.237	0.233
.27	.301	.295	.291	.286	.281	.277	.273	.268	.264	.259	.255	.251	.246	.242
.28	.313	.306	.302	.297	.292	.287	.283	.278	.273	.269	.264	.260	.256	.251
.29	.324	.317	.312	.307	.302	.297	.293	.288	.283	.278	.274	.269	.265	.260
.30	.335	.328	.323	.318	.312	.308	.303	.298	.293	.288	.283	.278	.274	.269
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.26	0.226	0.218	0.210	0.203	0.196	0.188	0.181	0.174	0.167	0.160	0.153	0.146	0.139	0.132
.27	.234	.226	.218	.211	.203	.195	.188	.181	.174	.166	.159	.151	.144	.137
.28	.243	.235	.226	.218	.211	.203	.195	.188	.180	.172	.165	.157	.150	.142
.29	.252	.243	.235	.226	.218	.210	.202	.195	.186	.179	.170	.163	.155	.147
.30	.260	.251	.243	.234	.226	.217	.209	.201	.193	.185	.176	.168	.160	.152
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.26	0.124	0.117	0.109	0.102	0.094	0.086	0.082	0.078	0.074	0.069	0.065	0.061	0.056	0.052
.27	.129	.122	.114	.106	.098	.089	.085	.081	.076	.072	.068	.063	.058	.054
.28	.134	.126	.118	.110	.101	.093	.088	.084	.079	.075	.070	.066	.060	.056
.29	.139	.131	.122	.114	.105	.096	.091	.087	.082	.077	.073	.068	.063	.058
.30	.144	.135	.126	.118	.109	.099	.094	.090	.085	.080	.075	.070	.065	.060
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.26	0.047	0.042	0.037	0.033	0.027	0.022	0.017	0.011	0.006	0.000	0.006	0.011	0.017	0.025
.27	.049	.044	.039	.034	.028	.023	.018	.012	.006	.000	.006	.012	.018	.026
.28	.051	.046	.040	.035	.029	.024	.018	.012	.006	.000	.006	.012	.018	.027
.29	.052	.047	.042	.036	.030	.025	.019	.013	.007	.000	.007	.013	.019	.028
.30	.054	.049	.043	.038	.031	.026	.020	.013	.007	.000	.007	.013	.020	.029
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.26	0.031	0.038	0.046	0.053	0.061	0.069	0.077	0.086	0.095	0.104	0.114	0.124	0.135	0.147
.27	.033	.040	.047	.055	.063	.071	.080	.089	.098	.108	.118	.129	.141	.153
.28	.034	.041	.049	.057	.065	.074	.083	.092	.102	.112	.123	.134	.146	.158
.29	.035	.043	.051	.059	.068	.077	.086	.095	.106	.116	.127	.139	.151	.164
.30	.036	.044	.052	.061	.070	.079	.089	.099	.109	.120	.132	.144	.156	.170
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.26	0.159	0.172	0.186	0.200	0.216	0.232	0.250	0.269	0.289	0.310	0.335	0.361	0.390	0.421
.27	.165	.179	.193	.208	.224	.241	.259	.279	.300	.322	.348	.375	.405	.437
.28	.171	.185	.200	.216	.232	.250	.269	.289	.311	.334	.361	.389	.420	.454
.29	.177	.192	.207	.223	.241	.259	.279	.299	.322	.346	.374	.403	.435	.470
.30	.184	.199	.214	.231	.249	.268	.288	.310	.333	.358	.387	.417	.450	.486
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.26	0.455	0.494	0.537	0.584	0.642	0.706	0.780	0.867	0.972	1.099	1.257	1.459	1.728	2.123
.27	.473	.513	.558	.606	.667	.733	.810	0.900	1.009	1.141	1.305	1.516	1.794	2.204
.28	.490	.532	.579	.629	.691	.759	.840	0.934	1.046	1.183	1.354	1.572	1.861	2.286
.29	.508	.551	.600	.651	.716	.787	.870	0.967	1.084	1.226	1.402	1.628	1.927	2.368
.30	.526	.570	.620	.676	.741	.805	.900	1.000	1.121	1.268	1.450	1.684	1.994	2.449
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.26	1.836	1.622	1.456	1.323	1.214	1.124	1.046	0.981	0.924	0.874	0.829	0.789	0.754	0.722
.27	1.907	1.685	1.512	1.374	1.261	1.167	1.087	1.019	0.959	0.907	.861	.820	.783	.750
.28	1.978	1.747	1.568	1.425	1.308	1.210	1.127	1.056	0.994	0.941	.893	.850	.812	.778
.29	2.048	1.809	1.624	1.476	1.354	1.253	1.167	1.094	1.030	0.974	.925	.880	.841	.805
.30	2.119	1.872	1.680	1.526	1.401	1.297	1.207	1.132	1.066	1.008	.956	.911	.870	.833
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.26	0.693	0.666	0.642	0.619	0.598	0.580	0.562	0.545	0.529	0.515	0.501	0.488	0.476	0.464
.27	.720	.692	.667	.643	.621	.602	.583	.566	.550	.535	.520	.507	.494	.482
.28	.747	.717	.691	.667	.644	.624	.605	.587	.570	.554	.539	.526	.512	.500
.29	.774	.743	.716	.690	.667	.647	.626	.608	.590	.574	.559	.545	.531	.518
.30	.800	.769	.741	.715	.690	.669	.648	.629	.611	.594	.578	.563	.549	.536

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VALUES OF THE AZIMUTH CORRECTION, *Aa*.

Argument: Zenith Distance South.

Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.31	0.446	0.437	0.428	0.422	0.412	0.406	0.397	0.391	0.384	0.378	0.370	0.365	0.358	0.353
.32	.461	.451	.442	.435	.426	.419	.410	.403	.397	.390	.382	.377	.369	.364
.33	.475	.465	.455	.449	.439	.432	.422	.416	.409	.402	.394	.388	.381	.375
.34	.490	.479	.469	.462	.452	.445	.435	.428	.422	.414	.406	.400	.393	.387
.35	.504	.494	.483	.476	.466	.458	.448	.441	.434	.427	.418	.412	.404	.398
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.31	0.346	0.339	0.334	0.329	0.323	0.317	0.313	0.307	0.302	0.297	0.293	0.288	0.283	0.278
.32	.357	.350	.344	.339	.333	.327	.323	.317	.312	.307	.302	.297	.292	.287
.33	.368	.361	.355	.350	.344	.338	.333	.327	.322	.316	.312	.306	.301	.296
.34	.379	.372	.366	.360	.354	.348	.343	.337	.332	.326	.321	.316	.310	.305
.35	.391	.383	.377	.371	.365	.359	.354	.347	.342	.336	.330	.325	.320	.314
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.31	0.269	0.260	0.251	0.242	0.233	0.224	0.216	0.208	0.199	0.191	0.182	0.174	0.166	0.157
.32	.278	.268	.259	.250	.241	.232	.223	.215	.206	.197	.188	.180	.171	.162
.33	.286	.277	.267	.257	.248	.239	.230	.221	.212	.203	.194	.185	.176	.167
.34	.295	.285	.275	.265	.256	.246	.237	.228	.219	.209	.200	.191	.182	.172
.35	.304	.293	.283	.273	.263	.253	.244	.235	.225	.216	.206	.196	.187	.177
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.31	0.148	0.140	0.131	0.121	0.112	0.103	0.098	0.093	0.088	0.083	0.078	0.072	0.066	0.062
.32	.153	.144	.135	.125	.116	.106	.101	.096	.091	.085	.080	.075	.069	.064
.33	.158	.149	.139	.129	.119	.109	.104	.099	.093	.088	.083	.077	.071	.066
.34	.163	.153	.143	.133	.123	.112	.107	.102	.096	.091	.085	.080	.073	.068
.35	.168	.158	.147	.137	.127	.116	.110	.105	.099	.093	.088	.082	.076	.070
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.31	0.056	0.050	0.045	0.039	0.033	0.026	0.020	0.014	0.007	0.000	0.007	0.014	0.020	0.030
.32	.058	.052	.046	.040	.034	.027	.021	.014	.007	.000	.007	.014	.021	.030
.33	.060	.054	.048	.041	.035	.028	.021	.015	.008	.000	.008	.015	.021	.031
.34	.062	.055	.049	.043	.036	.029	.022	.015	.008	.000	.008	.015	.022	.032
.35	.063	.057	.050	.044	.037	.030	.023	.015	.008	.000	.008	.015	.023	.033
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.31	0.038	0.046	0.054	0.063	0.072	0.082	0.091	0.102	0.113	0.124	0.136	0.148	0.162	0.175
.32	.039	.047	.056	.065	.075	.084	.094	.105	.116	.128	.140	.153	.167	.181
.33	.040	.049	.058	.067	.077	.087	.097	.109	.120	.132	.145	.158	.172	.186
.34	.041	.050	.060	.069	.079	.090	.100	.112	.124	.136	.149	.163	.177	.192
.35	.042	.051	.061	.071	.082	.092	.103	.115	.127	.140	.154	.168	.182	.198
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.31	0.190	0.205	0.221	0.239	0.257	0.276	0.298	0.320	0.344	0.370	0.400	0.431	0.464	0.502
.32	.196	.212	.228	.246	.266	.285	.307	.330	.355	.382	.413	.445	.479	.518
.33	.202	.218	.236	.254	.274	.294	.317	.341	.366	.394	.426	.459	.494	.535
.34	.208	.225	.243	.262	.282	.303	.327	.351	.377	.406	.439	.472	.509	.551
.35	.214	.232	.250	.270	.290	.312	.336	.361	.388	.418	.452	.486	.524	.567
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.31	0.543	0.589	0.641	0.696	0.765	0.841	0.930	1.034	1.158	1.310	1.499	1.740	2.060	2 531
.32	.560	.608	.661	.719	.790	.868	0.960	1.067	1.196	1.352	1.547	1.796	2.126	2.612
.33	.578	.627	.682	.741	.815	.895	0.990	1.101	1.233	1.395	1.595	1.852	2.193	2.694
.34	.595	.646	.703	.764	.840	.922	1.020	1.134	1.271	1.437	1.644	1.909	2.259	2.776
.35	.613	.665	.723	.789	.864	.950	1.050	1.167	1.308	1.479	1.692	1.964	2.326	2.857
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.31	2.190	1.934	1.736	1.577	1.448	1.340	1.248	1.170	1.101	1.042	0.988	0.941	0.899	0.861
.32	2.260	1.996	1.792	1.628	1.494	1.383	1.288	1.207	1.137	1.075	1.020	0.971	0.928	.889
.33	2.331	2.059	1.848	1.679	1.541	1.426	1.328	1.245	1.172	1.109	1.052	1.002	0.957	.917
.34	2.401	2.121	1.904	1.720	1.588	1.469	1.369	1.283	1.208	1.142	1.084	1.032	0.986	.944
.35	2.472	2.184	1.960	1.781	1.634	1.513	1.409	1.320	1.244	1.176	1.116	1.063	1.015	.972
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.31	0.827	0.794	0.765	0.738	0.713	0.691	0.670	0.650	0.631	0.614	0.597	0.582	0.567	0.554
.32	.853	.820	.790	.762	.736	.714	.691	.671	.652	.634	.617	.601	.586	.572
.33	.880	.845	.815	.786	.759	.736	.713	.692	.672	.653	.636	.619	.604	.589
.34	.907	.871	.840	.809	.782	.758	.734	.713	.692	.673	.655	.638	.622	.607
.35	.934	.897	.864	.834	.805	.780	.756	.734	.713	.693	.674	.657	.640	.625

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VALUES OF THE AZIMUTH CORRECTION, Aa.

Argument: Zenith Distance South.

Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.36	0.518	0.508	0.497	0.490	0.479	0.471	0.461	0.454	0.446	0.439	0.429	0.423	0.416	0.409
.37	.533	.522	.511	.503	.492	.485	.474	.466	.459	.451	.441	.435	.427	.420
.38	.547	.536	.524	.517	.505	.498	.486	.479	.471	.463	.453	.446	.439	.431
.39	.562	.550	.538	.530	.519	.511	.499	.491	.484	.475	.465	.459	.451	.443
.40	.576	.564	.553	.543	.532	.524	.512	.504	.496	.487	.477	.470	.462	.454
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.36	0.402	0.395	0.388	0.382	0.375	0.369	0.364	0.357	0.351	0.345	0.340	0.334	0.329	0.323
.37	.413	.406	.399	.392	.385	.379	.374	.367	.361	.355	.349	.343	.338	.332
.38	.424	.417	.410	.403	.395	.390	.384	.377	.371	.364	.359	.353	.347	.341
.39	.435	.428	.421	.413	.406	.400	.394	.387	.381	.374	.368	.362	.356	.350
.40	.446	.439	.432	.424	.416	.410	.404	.397	.390	.384	.378	.372	.365	.359
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.36	0.312	0.302	0.291	0.281	0.271	0.261	0.251	0.242	0.231	0.222	0.216	0.202	0.192	0.182
.37	.321	.310	.299	.289	.278	.268	.258	.248	.238	.228	.218	.208	.198	.188
.38	.330	.318	.307	.296	.286	.275	.265	.255	.244	.234	.223	.213	.203	.193
.39	.338	.327	.316	.304	.293	.282	.272	.262	.251	.240	.229	.219	.208	.198
.40	.347	.335	.324	.312	.301	.290	.279	.268	.257	.246	.235	.224	.214	.203
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.36	0.172	0.162	0.152	0.141	0.130	0.119	0.113	0.108	0.102	0.096	0.090	0.084	0.078	0.072
.37	.177	.167	.156	.145	.134	.122	.116	.111	.105	.099	.093	.087	.080	.074
.38	.182	.171	.160	.149	.138	.126	.119	.114	.108	.101	.095	.089	.082	.076
.39	.187	.176	.164	.153	.141	.129	.123	.117	.110	.104	.098	.091	.084	.078
.40	.192	.180	.168	.157	.145	.132	.126	.120	.113	.107	.100	.094	.086	.080
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.36	0.065	0.059	0.052	0.045	0.038	0.031	0.023	0.016	0.008	0.000	0.008	0.016	0.023	0.034
.37	.067	.060	.053	.046	.039	.031	.024	.016	.008	.000	.008	.016	.024	.035
.38	.069	.062	.055	.048	.040	.032	.025	.017	.009	.000	.009	.017	.025	.036
.39	.071	.064	.056	.049	.041	.033	.025	.017	.009	.000	.009	.017	.025	.037
.40	.072	.065	.058	.050	.042	.034	.026	.018	.009	.000	.009	.018	.026	.038
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.36	0.044	0.053	0.063	0.073	0.084	0.095	0.106	0.118	0.131	0.144	0.158	0.172	0.188	0.203
.37	.045	.054	.065	.075	.086	.098	.109	.122	.135	.148	.162	.177	.193	.209
.38	.046	.056	.067	.077	.089	.100	.112	.125	.138	.152	.167	.182	.198	.215
.39	.047	.057	.068	.080	.091	.103	.115	.128	.142	.156	.171	.187	.203	.220
.40	.048	.059	.070	.082	.093	.106	.118	.132	.146	.160	.176	.192	.208	.226
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.36	0.220	0.238	0.257	0.277	0.299	0.321	0.346	0.372	0.400	0.429	0.464	0.500	0.539	0.583
.37	.226	.245	.264	.285	.307	.330	.356	.382	.411	.441	.477	.514	.554	.599
.38	.232	.252	.271	.293	.315	.339	.365	.392	.422	.453	.490	.528	.569	.616
.39	.239	.258	.278	.300	.324	.348	.375	.402	.433	.465	.503	.542	.584	.632
.40	.245	.265	.286	.308	.332	.357	.384	.413	.444	.477	.516	.556	.599	.648
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.36	0.630	0.684	0.744	0.812	0.889	0.977	1.080	1.201	1.345	1.521	1.740	2.021	2.392	2.939
.37	.648	.703	.765	.834	.913	1.004	1.110	1.234	1.383	1.564	1.789	2.077	2.459	3.021
.38	.665	.722	.786	.857	.939	1.031	1.140	1.267	1.420	1.606	1.837	2.133	2.525	3.102
.39	.683	.741	.806	.879	.963	1.058	1.170	1.301	1.457	1.648	1.885	2.189	2.592	3.184
.40	.701	.760	.827	.902	.988	1.086	1.200	1.334	1.495	1.690	1.934	2.245	2.658	3.266
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.36	2.543	2.246	2.016	1.832	1.681	1.556	1.449	1.358	1.279	1.209	1.147	1.092	1.044	1.000
.37	2.613	2.308	2.072	1.883	1.728	1.599	1.489	1.396	1.315	1.243	1.179	1.124	1.073	1.027
.38	2.684	2.371	2.128	1.933	1.775	1.642	1.530	1.434	1.350	1.276	1.211	1.154	1.102	1.055
.39	2.755	2.433	2.184	1.984	1.821	1.686	1.570	1.471	1.386	1.310	1.244	1.185	1.132	1.083
.40	2.825	2.496	2.240	2.035	1.868	1.729	1.610	1.509	1.421	1.344	1.275	1.214	1.160	1.111
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.36	0.960	0.923	0.889	0.857	0.829	0.803	0.778	0.755	0.732	0.713	0.693	0.676	0.659	0.642
.37	0.986	0.949	.914	.881	.852	.825	.799	.776	.753	.733	.713	.695	.677	.660
.38	1.013	0.974	.938	.905	.875	.847	.821	.797	.774	.752	.732	.713	.695	.678
.39	1.039	1.000	.963	.929	.898	.870	.842	.818	.793	.773	.751	.732	.714	.696
.40	1.066	1.026	.988	.957	.920	.892	.864	.840	.814	.792	.771	.751	.732	.714

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VALUE OF THE AZIMUTH CORRECTION, *Aa*.

Constant.

Argument: Zenith Distance South.

Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.41	0.590	0.578	0.566	0.558	0.545	0.537	0.525	0.517	0.508	0.500	0.489	0.482	0.474	0.466
.42	.605	.592	.580	.571	.559	.550	.538	.529	.521	.512	.500	.494	.485	.476
.43	.619	.606	.593	.585	.572	.563	.550	.542	.533	.524	.513	.506	.497	.488
.44	.634	.620	.607	.598	.585	.576	.563	.554	.545	.536	.524	.518	.509	.500
.45	.648	.634	.621	.612	.598	.589	.576	.567	.558	.549	.537	.529	.520	.511
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.41	0.458	0.450	0.442	0.435	0.427	0.420	0.414	0.407	0.400	0.393	0.387	0.380	0.374	0.368
.42	.469	.461	.453	.445	.437	.430	.424	.417	.410	.403	.396	.390	.383	.377
.43	.480	.472	.464	.456	.448	.441	.434	.426	.420	.412	.406	.399	.393	.386
.44	.491	.483	.475	.466	.458	.451	.444	.436	.429	.422	.415	.408	.402	.395
.45	.502	.494	.486	.477	.468	.461	.454	.446	.439	.432	.425	.418	.411	.404
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.41	0.356	0.344	0.332	0.320	0.308	0.297	0.286	0.275	0.264	0.253	0.241	0.230	0.219	0.208
.42	.365	.352	.340	.328	.316	.304	.293	.282	.270	.259	.247	.236	.224	.213
.43	.373	.360	.348	.335	.323	.311	.300	.289	.276	.265	.253	.241	.230	.218
.44	.382	.369	.356	.343	.331	.319	.307	.295	.283	.271	.259	.247	.235	.223
.45	.391	.377	.364	.351	.338	.326	.314	.302	.289	.277	.265	.252	.240	.228
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.41	0.196	0.185	0.173	0.161	0.148	0.136	0.129	0.123	0.116	0.109	0.103	0.096	0.089	0.082
.42	.201	.189	.177	.165	.152	.139	.132	.126	.119	.112	.105	.098	.091	.084
.43	.206	.194	.181	.169	.156	.142	.135	.129	.122	.115	.108	.101	.093	.086
.44	.211	.198	.185	.172	.159	.146	.139	.132	.124	.117	.110	.103	.095	.088
.45	.216	.203	.189	.176	.163	.149	.142	.135	.127	.120	.113	.105	.097	.090
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.41	0.074	0.067	0.059	0.051	0.043	0.035	0.027	0.018	0.009	0.000	0.009	0.018	0.029	0.039
.42	.076	.068	.060	.052	.044	.036	.027	.018	.010	.000	.010	.018	.029	.040
.43	.078	.070	.062	.054	.045	.037	.028	.019	.010	.000	.010	.019	.030	.041
.44	.080	.072	.063	.055	.046	.037	.029	.019	.010	.000	.010	.019	.031	.042
.45	.081	.073	.065	.056	.047	.038	.029	.020	.010	.000	.010	.020	.032	.043
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.41	0.050	0.060	0.072	0.084	0.095	0.108	0.121	0.135	0.149	0.164	0.180	0.197	0.214	0.232
.42	.051	.062	.074	.086	.098	.111	.124	.138	.153	.168	.184	.201	.219	.237
.43	.052	.063	.075	.088	.100	.113	.127	.141	.156	.172	.189	.206	.224	.243
.44	.053	.065	.077	.090	.102	.116	.130	.145	.160	.176	.193	.211	.229	.249
.45	.054	.066	.079	.092	.105	.119	.133	.148	.164	.180	.198	.216	.234	.254
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.41	0.251	0.271	0.293	0.316	0.340	0.366	0.394	0.423	0.455	0.489	0.528	0.570	0.614	0.664
.42	.257	.278	.300	.323	.349	.375	.404	.433	.466	.501	.541	.584	.629	.680
.43	.263	.285	.307	.331	.357	.384	.413	.444	.477	.513	.554	.598	.644	.697
.44	.269	.291	.314	.339	.365	.392	.423	.454	.488	.525	.567	.611	.659	.713
.45	.275	.298	.321	.346	.374	.401	.432	.464	.499	.537	.580	.625	.674	.729
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.41	0.718	0.779	0.847	0.924	1.012	1.113	1.230	1.367	1.532	1.733	1.982	2.301	2.724	3.347
.42	.735	.798	.868	0.947	1.037	1.140	1.260	1.401	1.570	1.775	2.030	2.357	2.791	3.429
.43	.753	.817	.889	0.969	1.062	1.167	1.290	1.434	1.607	1.817	2.079	2.414	2.857	3.511
.44	.770	.836	.910	0.992	1.086	1.194	1.320	1.467	1.644	1.859	2.127	2.470	2.924	3.592
.45	.788	.855	.930	1.015	1.111	1.212	1.350	1.501	1.682	1.902	2.175	2.526	2.990	3.674
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.41	2.896	2.558	2.296	2.086	1.915	1.772	1.650	1.547	1.457	1.378	1.307	1.245	1.190	1.139
.42	2.966	2.620	2.382	2.137	1.961	1.815	1.691	1.585	1.492	1.411	1.339	1.271	1.219	1.166
.43	3.037	2.683	2.408	2.188	2.008	1.858	1.731	1.622	1.528	1.444	1.370	1.306	1.248	1.194
.44	3.108	2.745	2.464	2.239	2.055	1.902	1.771	1.660	1.563	1.478	1.403	1.336	1.277	1.222
.45	3.178	2.808	2.520	2.290	2.102	1.945	1.811	1.698	1.599	1.512	1.435	1.366	1.306	1.250
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.41	1.093	1.051	1.012	0.976	0.944	0.914	0.886	0.860	0.835	0.812	0.790	0.770	0.750	0.731
.42	1.119	1.076	1.037	1.000	0.967	0.937	.907	.881	.855	.832	.808	.789	.769	.749
.43	1.147	1.103	1.062	1.024	0.990	0.959	.929	.902	.875	.852	.829	.808	.787	.768
.44	1.172	1.128	1.086	1.048	1.013	0.981	.950	.923	.896	.872	.848	.826	.805	.785
.45	1.200	1.154	1.111	1.072	1.036	1.004	.972	.944	.916	.891	.867	.845	.824	.803

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VALUES OF THE AZIMUTH CORRECTION, *Aa*.

Constant. Argument: Zenith Distance South. Between 0° and 85° and between 275° and 303° the Correction has the same sign as the Constant; between 315° and 0° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.46	0.662	0.649	0.635	0.624	0.614	0.602	0.589	0.580	0.570	0.561	0.548	0.541	0.532	0.523
.47	.677	.663	.649	.637	.627	.615	.602	.592	.583	.573	.560	.553	.543	.534
.48	.691	.677	.662	.651	.641	.629	.614	.605	.595	.586	.572	.565	.555	.546
.49	.706	.691	.676	.664	.654	.642	.627	.617	.608	.598	.584	.577	.567	.557
.50	.718	.704	.691	.678	.666	.654	.640	.630	.620	.608	.598	.588	.578	.568
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.46	0.514	0.505	0.496	0.488	0.479	0.471	0.465	0.456	0.449	0.441	0.434	0.427	0.420	0.413
.47	.525	.516	.507	.498	.489	.481	.475	.466	.459	.451	.444	.436	.429	.422
.48	.536	.527	.518	.509	.500	.492	.485	.476	.468	.460	.453	.445	.438	.430
.49	.547	.538	.529	.519	.510	.502	.495	.486	.478	.470	.463	.455	.447	.439
.50	.558	.549	.540	.530	.520	.512	.505	.496	.488	.480	.472	.464	.456	.448
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.46	0.399	0.385	0.372	0.359	0.346	0.333	0.321	0.309	0.296	0.283	0.270	0.258	0.246	0.233
.47	.408	.394	.380	.367	.353	.340	.328	.315	.302	.290	.276	.264	.251	.238
.48	.417	.402	.388	.374	.361	.348	.335	.322	.309	.296	.282	.269	.256	.243
.49	.425	.411	.396	.382	.368	.355	.342	.329	.315	.302	.288	.275	.262	.248
.50	.434	.419	.404	.390	.377	.362	.349	.336	.322	.308	.294	.280	.267	.254
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.46	0.220	0.207	0.194	0.180	0.166	0.152	0.145	0.138	0.130	0.123	0.115	0.108	0.099	0.092
.47	.225	.212	.198	.184	.170	.156	.148	.141	.133	.125	.118	.110	.101	.094
.48	.230	.216	.202	.188	.174	.159	.151	.144	.136	.128	.120	.112	.104	.096
.49	.235	.221	.206	.192	.177	.162	.154	.147	.139	.131	.123	.115	.106	.098
.50	.240	.226	.210	.196	.181	.166	.158	.150	.142	.134	.126	.117	.108	.100
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.46	0.083	0.075	0.066	0.058	0.048	0.039	0.030	0.020	0.011	0.000	0.011	0.020	0.032	0.044
.47	.085	.077	.068	.059	.049	.040	.031	.021	.011	.000	.011	.021	.033	.045
.48	.087	.078	.069	.060	.050	.041	.031	.021	.011	.000	.011	.021	.034	.046
.49	.089	.080	.071	.061	.051	.042	.032	.022	.011	.000	.011	.022	.034	.047
.50	.090	.082	.072	.062	.052	.043	.033	.022	.011	.000	.011	.022	.035	.048
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.46	0.056	0.068	0.080	0.094	0.107	0.121	0.136	0.151	0.167	0.184	0.202	0.220	0.240	0.260
.47	.057	.069	.082	.096	.109	.124	.139	.155	.171	.188	.206	.225	.245	.266
.48	.058	.071	.084	.098	.112	.127	.142	.158	.175	.192	.211	.230	.250	.271
.49	.059	.072	.086	.100	.114	.129	.145	.161	.178	.196	.215	.235	.255	.277
.50	.060	.074	.088	.102	.116	.132	.148	.164	.182	.200	.220	.240	.260	.282
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.46	0.282	0.304	0.328	0.354	0.382	0.410	0.442	0.475	0.511	0.549	0.593	0.639	0.689	0.745
.47	.288	.311	.336	.362	.390	.419	.452	.485	.522	.561	.606	.653	.704	.761
.48	.294	.318	.343	.370	.398	.428	.461	.495	.533	.573	.619	.667	.719	.778
.49	.300	.324	.350	.377	.407	.437	.471	.506	.544	.585	.632	.681	.734	.794
.50	.306	.331	.357	.385	.415	.446	.480	.517	.555	.597	.645	.695	.749	.810
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.46	0.805	0.874	0.952	1.040	1.136	1.249	1.380	1.534	1.719	1.944	2.224	2.582	3.057	3.755
.47	.823	.893	0.973	1.060	1.160	1.276	1.410	1.567	1.756	1.986	2.272	2.638	3.123	3.837
.48	.840	.912	0.993	1.082	1.185	1.302	1.440	1.601	1.794	2.028	2.320	2.694	3.190	3.919
.49	.858	.931	1.013	1.105	1.210	1.330	1.470	1.634	1.831	2.071	2.369	2.750	3.256	4.000
.50	.876	.950	1.034	1.128	1.234	1.358	1.500	1.668	1.868	2.113	2.417	2.806	3.322	4.082
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.46	3.249	2.870	2.576	2.340	2.148	1.988	1.852	1.736	1.634	1.545	1.467	1.396	1.334	1.277
.47	3.320	2.932	2.632	2.391	2.195	2.031	1.892	1.778	1.670	1.579	1.498	1.428	1.363	1.305
.48	3.390	2.995	2.688	2.442	2.242	2.075	1.932	1.811	1.705	1.612	1.530	1.458	1.392	1.333
.49	3.461	3.057	2.744	2.493	2.288	2.118	1.972	1.849	1.741	1.646	1.562	1.488	1.421	1.361
.50	3.532	3.120	2.800	2.544	2.335	2.161	2.012	1.886	1.776	1.680	1.594	1.518	1.450	1.388
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.46	1.225	1.179	1.127	1.095	1.058	1.026	0.994	0.965	0.938	0.911	0.886	0.865	0.842	0.821
.47	1.252	1.205	1.160	1.120	1.081	1.048	1.015	0.985	0.957	.931	.906	.883	.860	.839
.48	1.280	1.231	1.185	1.143	1.104	1.070	1.037	1.006	0.977	.951	.925	.901	.878	.857
.49	1.306	1.256	1.210	1.167	1.127	1.093	1.058	1.028	0.998	.971	.944	.920	.897	.875
.50	1.333	1.282	1.234	1.191	1.150	1.115	1.080	1.048	1.018	.990	.964	.939	.915	.893

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TABLE II.

L E V E L .

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VALUES OF THE LEVEL CORRECTION, *Bb*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004
.02	.002	.003	.003	.004	.004	.005	.005	.005	.006	.006	.006	.007	.007	.007
.03	.004	.005	.005	.006	.006	.007	.007	.008	.009	.009	.010	.010	.011	.011
.04	.005	.006	.007	.008	.008	.009	.010	.011	.011	.012	.013	.013	.014	.015
.05	.006	.007	.008	.009	.010	.012	.012	.013	.014	.015	.016	.017	.018	.018
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	°	**58°**
0.01	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.006
.02	.008	.008	.008	.009	.009	.009	.009	.010	.010	.010	.010	.011	.011	.011
.03	.011	.012	.012	.013	.013	.014	.014	.014	.015	.015	.016	.016	.016	.017
.04	.015	.016	.016	.017	.018	.018	.019	.019	.020	.020	.021	.022	.022	.022
.05	.019	.020	.021	.021	.022	.023	.024	.024	.025	.026	.026	.027	.027	.028
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**2°**	**30°**
0.01	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.008	0.008	0.008	0.008	0.008	0.009
.02	.012	.012	.013	.013	.014	.014	.014	.015	.015	.016	.016	.017	.017	.017
.03	.018	.018	.019	.020	.020	.021	.022	.022	.023	.024	.024	.025	.026	.026
.04	.023	.024	.025	.026	.027	.028	.029	.030	.031	.032	.032	.033	.034	.035
.05	.029	.030	.032	.033	.034	.035	.036	.037	.038	.039	.040	.042	.043	.044
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.01	0.009	0.009	0.009	0.010	0.010	0.010	0.010	0.010	0.011	0.011	0.011	0.011	0.011	0.011
.02	.018	.018	.019	.019	.020	.020	.021	.021	.021	.021	.022	.022	.022	.023
.03	.027	.028	.028	.029	.030	.031	.031	.031	.032	.032	.033	.033	.033	.034
.04	.036	.037	.038	.039	.040	.041	.041	.042	.042	.043	.043	.044	.045	.045
.05	.045	.046	.047	.048	.050	.051	.052	.052	.053	.053	.054	.055	.056	.056
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.01	0.011	0.011	0.012	0.012	0.012	0.012	0.012	0.013	0.013	0.013	0.013	0.013	0.013	0.014
.02	.023	.023	.023	.024	.024	.024	.025	.025	.025	.026	.026	.026	.027	.027
.03	.034	.035	.035	.036	.036	.037	.037	.038	.038	.039	.039	.039	.040	.041
.04	.046	.046	.047	.047	.048	.049	.049	.050	.051	.052	.052	.053	.054	.055
.05	.057	.058	.058	.059	.060	.061	.062	.062	.063	.064	.065	.066	.067	.068
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**3 4°**	°
0.01	0.014	0.014	0.014	0.014	0.015	0.015	0.015	0.015	0.016	0.016	0.016	0.017	0.017	0.017
.02	.027	.028	.028	.029	.029	.030	.030	.031	.032	.032	.033	.033	.034	.035
.03	.042	.042	.043	.044	.044	.045	.046	.047	.048	.048	.049	.050	.051	.052
.04	.055	.056	.057	.058	.059	.060	.061	.062	.063	.064	.066	.067	.068	.070
.05	.069	.070	.071	.072	.074	.075	.076	.078	.079	.080	.082	.084	.085	.087
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.01	0.018	0.018	0.019	0.019	0.020	0.020	0.021	0.021	0.022	0.022	0.023	0.024	0.025	0.026
.02	.036	.036	.037	.038	.039	.040	.041	.042	.044	.045	.046	.048	.050	.052
.03	.054	.055	.056	.057	.059	.060	.062	.064	.066	.068	.070	.072	.075	.078
.04	.071	.073	.075	.076	.078	.080	.082	.084	.087	.090	.093	.096	.100	.104
.05	.089	.091	.093	.095	.098	.100	.103	.106	.109	.112	.116	.120	.125	.130
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.01	0.027	0.028	0.030	0.031	0.033	0.035	0.037	0.040	0.043	0.047	0.052	0.058	0.066	0.053
.02	.054	.056	.059	.062	.066	.070	.074	.080	.086	.094	.104	.117	.134	.107
.03	.081	.085	.089	.093	.099	.104	.112	.120	.129	.141	.156	.175	.200	.160
.04	.108	.113	.118	.124	.131	.139	.149	.160	.172	.188	.208	.232	.267	.213
.05	.135	.141	.148	.155	.164	.174	.185	.199	.215	.235	.269	.291	.332	.265
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.01	0.044	0.037	0.032	0.028	0.025	0.022	0.020	0.018	0.016	0.014	0.013	0.012	0.011	0.010
.02	.089	.075	.065	.056	.050	.044	.039	.035	.032	.029	.026	.023	.021	.019
.03	.133	.113	.097	.085	.075	.066	.059	.053	.047	.043	.039	.035	.032	.029
.04	.177	.150	.130	.113	.100	.088	.079	.071	.063	.057	.052	.047	.042	.038
.05	.221	.188	.162	.141	.124	.110	.098	.088	.079	.071	.064	.058	.053	.048
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.01	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002
.02	.017	.016	.015	.013	.011	.010	.009	.008	.007	.006	.005	.005	.004	.003
.03	.026	.023	.021	.019	.017	.015	.014	.012	.011	.009	.008	.007	.006	.005
.04	.035	.031	.028	.026	.023	.021	.018	.016	.014	.012	.011	.009	.008	.006
.05	.043	.039	.035	.032	.029	.026	.023	.020	.018	.016	.014	.012	.010	.008

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VALUES OF THE LEVEL CORRECTION, *Bb*.

Constant.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.06	0.008	0.009	0.010	0.011	0.013	0.014	0.015	0.016	0.017	0.018	0.019	0.020	0.021	0.022
.07	.009	.010	.012	.013	.015	.016	.018	.019	.020	.021	.022	.024	.025	.026
.08	.010	.012	.014	.015	.017	.018	.020	.022	.023	.024	.026	.027	.028	.030
.09	.011	.013	.015	.017	.019	.021	.022	.024	.026	.027	.029	.030	.032	.033
.10	.013	.015	.017	.019	.021	.023	.025	.027	.029	.030	.032	.034	.035	.037
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.06	0.023	0.024	0.025	0.026	0.027	0.028	0.028	0.029	0.030	0.031	0.031	0.032	0.033	0.034
.07	.027	.028	.029	.030	.031	.032	.033	.034	.035	.036	.036	.037	.038	.039
.08	.031	.032	.033	.034	.035	.036	.038	.039	.040	.041	.042	.043	.044	.045
.09	.035	.036	.037	.039	.040	.041	.042	.044	.045	.046	.047	.048	.049	.051
.10	.038	.040	.041	.043	.044	.046	.047	.048	.050	.051	.052	.054	.055	.056
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.06	0.035	0.036	0.038	0.040	0.041	0.042	0.043	0.044	0.046	0.047	0.049	0.050	0.051	0.053
.07	.041	.043	.044	.046	.048	.049	.050	.052	.053	.055	.057	.058	.060	.061
.08	.047	.049	.051	.052	.054	.056	.058	.060	.062	.063	.065	.067	.068	.070
.09	.053	.055	.057	.059	.061	.063	.065	.067	.069	.071	.073	.075	.077	.079
.10	.058	.061	.063	.066	.068	.070	.072	.074	.077	.079	.081	.083	.085	.088
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.06	0.054	0.055	0.057	0.058	0.059	0.061	0.062	0.063	0.064	0.064	0.065	0.066	0.067	0.068
.07	.063	.064	.066	.068	.069	.071	.072	.073	.074	.075	.076	.077	.078	.079
.08	.072	.074	.076	.078	.079	.082	.083	.084	.085	.086	.087	.088	.089	.090
.09	.081	.083	.085	.087	.089	.092	.093	.094	.095	.096	.097	.099	.100	.101
.10	.090	.092	.094	.097	.099	.102	.103	.104	.106	.107	.108	.110	.111	.112
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.06	0.069	0.069	0.070	0.071	0.072	0.073	0.074	0.075	0.076	0.077	0.078	0.079	0.080	0.082
.07	.080	.081	.082	.083	.084	.085	.086	.088	.089	.090	.091	.093	.094	.095
.08	.091	.092	.094	.095	.096	.098	.099	.100	.102	.103	.104	.106	.107	.109
.09	.103	.104	.105	.106	.108	.109	.111	.113	.114	.116	.117	.119	.120	.122
.10	.114	.115	.117	.118	.120	.122	.123	.125	.127	.129	.130	.132	.134	.136
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.06	0.083	0.084	0.085	0.087	0.088	0.090	0.091	0.093	0.095	0.097	0.099	0.100	0.102	0.105
.07	.097	.098	.100	.102	.103	.105	.107	.109	.111	.113	.115	.117	.120	.122
.08	.110	.112	.114	.116	.118	.120	.122	.124	.126	.129	.131	.134	.137	.139
.09	.124	.126	.129	.131	.133	.135	.137	.140	.142	.145	.148	.151	.154	.157
.10	.138	.140	.143	.145	.147	.150	.152	.155	.158	.161	.164	.167	.171	.174
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.06	0.107	0.109	0.112	0.115	0.117	0.120	0.124	0.127	0.131	0.135	0.139	0.144	0.150	0.156
.07	.125	.128	.130	.134	.137	.140	.144	.149	.153	.158	.163	.168	.175	.182
.08	.142	.146	.149	.153	.157	.160	.165	.170	.175	.180	.186	.192	.200	.207
.09	.160	.164	.168	.172	.176	.180	.186	.191	.197	.203	.209	.216	.224	.233
.10	.178	.182	.186	.191	.195	.200	.206	.212	.218	.225	.232	.240	.249	.259
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.06	0.162	0.169	0.177	0.186	0.197	0.209	0.222	0.239	0.258	0.282	0.312	0.349	0.399	0.319
.07	.189	.198	.207	.217	.230	.244	.260	.279	.301	.329	.363	.407	.466	.372
.08	.216	.226	.237	.248	.262	.278	.297	.318	.344	.376	.415	.465	.532	.424
.09	.243	.254	.266	.279	.295	.313	.334	.358	.387	.423	.467	.524	.599	.477
.10	.270	.282	.295	.310	.328	.348	.371	.398	.430	.470	.519	.582	.665	.530
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.06	0.266	0.225	0.194	0.169	0.149	0.132	0.118	0.106	0.095	0.086	0.077	0.070	0.064	0.057
.07	.310	.263	.227	.198	.174	.154	.138	.123	.111	.100	.090	.082	.074	.067
.08	.353	.300	.259	.226	.199	.176	.157	.140	.127	.114	.103	.094	.085	.076
.09	.398	.338	.291	.254	.224	.198	.177	.159	.142	.129	.116	.105	.095	.086
.10	.442	.375	.324	.282	.249	.220	.196	.176	.158	.143	.129	.117	.106	.095
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.06	0.052	0.047	0.043	0.038	0.034	0.031	0.028	0.024	0.022	0.019	0.016	0.014	0.012	0.009
.07	.061	.055	.050	.045	.040	.036	.032	.028	.025	.022	.019	.016	.013	.011
.08	.070	.063	.057	.051	.046	.041	.037	.032	.029	.025	.022	.018	.015	.012
.09	.078	.070	.064	.058	.051	.046	.041	.037	.032	.028	.024	.020	.017	.014
.10	.087	.078	.071	.064	.057	.052	.046	.041	.036	.031	.027	.023	.019	.016

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VALUES OF THE LEVEL CORRECTION, *Bb*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

Constants.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.11	0.014	0.016	0.019	0.021	0.023	0.025	0.027	0.029	0.031	0.033	0.035	0.037	0.039	0.041
.12	.015	.018	.020	.023	.025	.028	.030	.032	.034	.036	.039	.040	.042	.044
.13	.016	.019	.022	.025	.027	.030	.032	.035	.037	.039	.042	.044	.046	.048
.14	.018	.021	.024	.027	.029	.032	.035	.037	.040	.042	.045	.047	.049	.052
.15	.019	.022	.025	.029	.031	.034	.037	.040	.043	.045	.048	.050	.053	.055
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.11	0.042	0.044	0.046	0.047	0.049	0.050	0.052	0.053	0.055	0.056	0.058	0.059	0.060	0.062
.12	.046	.048	.050	.051	.053	.055	.056	.058	.060	.061	.063	.064	.066	.067
.13	.050	.052	.054	.056	.058	.059	.061	.063	.065	.066	.068	.070	.071	.073
.14	.054	.056	.058	.060	.062	.064	.066	.068	.070	.071	.073	.075	.077	.079
.15	.058	.060	.062	.064	.066	.068	.070	.073	.075	.076	.078	.080	.082	.084
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.11	0.064	0.067	0.070	0.072	0.075	0.077	0.079	0.082	0.084	0.087	0.089	0.092	0.094	0.096
.12	.070	.073	.076	.079	.081	.084	.087	.089	.092	.095	.097	.100	102	.105
.13	.076	.079	.082	.085	.088	.091	.094	.097	.100	.102	.105	.108	111	.114
.14	.082	.085	.088	.092	.095	.098	.101	.104	.107	.110	.113	.116	120	.123
.15	.088	.091	.095	.098	.102	.105	.108	.112	.115	.118	.122	.125	128	.131
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.11	0.099	0.101	0.104	0.107	0.109	0.112	0.113	0.115	0.116	0.118	0.119	0.121	0.122	0.124
.12	.108	.111	.113	.116	.119	.122	.124	.125	.127	.128	.130	.132	.133	.135
.13	.117	.120	.123	.126	.129	.132	.134	.136	.137	.139	.141	.143	.144	.146
.14	.126	.129	.132	.136	.139	.143	.144	.146	.148	.150	.152	.154	.155	.157
.15	.135	.138	.142	.145	.149	.153	.154	.157	.158	.160	.163	.165	.166	.169
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.11	0.125	0.127	0.129	0.130	0.132	0.134	0.136	0.138	0.139	0.141	0.143	0.145	0.147	0.150
.12	.137	.138	.140	.142	.144	.146	.148	.150	.152	.154	.156	.159	.161	.163
.13	.148	.150	.152	.154	.156	.158	.160	.162	.164	.167	.169	.172	.174	.177
.14	.160	.161	.164	.166	.168	.170	.173	.175	.177	.180	.182	.185	.188	.191
.15	.171	.173	.176	.178	.180	.182	.185	.188	.190	.193	.196	.198	.201	.204
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.11	0.152	0.154	0.157	0.159	0.162	0.165	0.168	0.171	0.174	0.177	0.180	0.184	0.188	0.192
.12	.166	.168	.171	.174	.177	.180	.183	.186	.190	.193	.197	.201	.205	.209
.13	.179	.182	.185	.188	.191	.195	.198	.202	.205	.209	.213	.217	.222	.226
.14	.193	.196	.200	.203	.206	.210	.213	.217	.221	.225	.229	.234	.239	.244
.15	.207	.210	.214	.217	.221	.225	.229	.232	.237	.241	.246	.251	.256	.261
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.11	0.196	0.200	0.205	0.210	0.215	0.221	0.227	0.233	0.240	0.248	0.256	0.265	0.274	0.285
.12	.214	.218	.223	.229	.234	.241	.247	.254	.262	.270	.279	.289	.299	.311
.13	.231	.236	.242	.248	.254	.261	.268	.275	.283	.292	.302	.313	.324	.337
.14	.249	.255	.260	.267	.274	.281	.288	.296	.305	.315	.325	.337	.349	.363
.15	.267	.273	.279	.286	.293	.301	.309	.318	.327	.338	.349	.361	.374	.389
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.11	0.297	0.310	0.325	0.341	0.361	0.382	0.408	0.438	0.473	0.516	0.571	0.640	0.731	0.584
.12	.324	.338	.354	.372	.393	.417	.445	.478	.516	.563	.622	.698	.798	.637
.13	.351	.367	.384	.403	.426	.452	.482	.517	.559	.610	.674	.756	.864	.690
.14	.378	.395	.413	.434	.459	.486	.519	.557	.602	.657	.726	.814	.931	.743
.15	.405	.423	.443	.465	.492	.521	.556	.597	.645	.704	.778	.872	.997	.796
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.11	0.486	0.412	0.355	0.310	0.273	0.242	0.216	0.194	0.174	0.157	0.142	0.128	0.116	0.105
.12	.530	.450	.387	.338	.298	.264	.236	.211	.190	.171	.155	.140	.127	.115
.13	.574	.487	.419	.367	.323	.286	.256	.229	.206	.185	.168	.152	.137	.124
.14	.618	.525	.452	.395	.348	.309	.276	.246	.222	.200	.181	.163	.148	.134
.15	.662	.562	.484	.423	.373	.331	.295	.264	.237	.214	.194	.175	.159	.144
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.11	0.095	0.086	0.078	0.070	0.063	0.057	0.051	0.045	0.039	0.035	0.030	0.025	0.021	0.017
.12	.104	.094	.085	.077	.069	.062	.055	.049	.043	.038	.033	.028	.023	.019
.13	.113	.102	.092	.083	.075	.067	.060	.053	.047	.041	.035	.030	.025	.020
.14	.121	.110	.099	.089	.080	.072	.064	.057	.050	.044	.038	.032	.027	.022
.15	.130	.118	.106	.096	.086	.077	.069	.061	.054	.047	.041	.035	.029	.023

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VALUES OF THE LEVEL CORRECTION, *Bb*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.16	0.020	0.024	0.027	0.030	0.034	0.037	0.040	0.043	0.046	0.048	0.051	0.054	0.056	0.059
.17	.021	.025	.029	.032	.036	.039	.042	.045	.049	.051	.054	.057	.060	.063
.18	.023	.027	.030	.034	.038	.041	.045	.048	.051	.055	.058	.061	.063	.066
.19	.024	.028	.032	.036	.040	.044	.047	.051	.054	.058	.061	.064	.067	.070
.20	.025	.030	.034	.038	.042	.046	.050	.053	.057	.061	.064	.067	.071	.074
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.16	0.061	0.064	0.066	0.069	0.071	0.072	0.075	0.077	0.080	0.081	0.084	0.086	0.088	0.090
.17	.065	.068	.070	.073	.075	.077	.080	.082	.085	.087	.089	.091	.093	.095
.18	.069	.072	.074	.077	.080	.082	.085	.087	.089	.092	.094	.096	.099	.101
.19	.073	.076	.079	.082	.084	.087	.089	.092	.094	.097	.099	.102	.104	.107
.20	.077	.080	.083	.086	.089	.091	.094	.097	.099	.102	.105	.107	.110	.112
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.16	0.094	0.097	0.101	0.105	0.108	0.112	0.116	0.119	0.123	0.126	0.130	0.133	0.137	0.140
.17	.099	.103	.107	.111	.115	.119	.123	.126	.130	.134	.138	.141	.145	.149
.18	.105	.109	.114	.118	.122	.126	.130	.134	.138	.142	.146	.150	.154	.158
.19	.111	.116	.120	.124	.129	.133	.137	.141	.146	.150	.154	.158	.162	.166
.20	.117	.122	.126	.131	.136	.140	.144	.149	.153	.158	.162	.166	.171	.175
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.16	0.144	0.148	0.151	0.155	0.159	0.163	0.165	0.167	0.169	0.171	0.174	0.175	0.178	0.180
.17	.153	.157	.161	.165	.169	.173	.175	.177	.179	.182	.184	.186	.189	.191
.18	.162	.166	.170	.174	.179	.183	.185	.188	.190	.193	.195	.197	.200	.202
.19	.171	.175	.180	.184	.189	.194	.196	.198	.200	.203	.206	.208	.211	.214
.20	.180	.184	.189	.194	.199	.204	.206	.209	.211	.214	.217	.219	.222	.225
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.16	0.182	0.185	0.187	0.189	0.192	0.195	0.197	0.200	0.203	0.205	0.209	0.212	0.214	0.218
.17	.194	.196	.199	.201	.204	.207	.210	.212	.215	.218	.222	.225	.228	.231
.18	.205	.208	.211	.213	.216	.219	.222	.225	.228	.231	.235	.238	.241	.245
.19	.217	.219	.222	.225	.228	.231	.234	.238	.240	.244	.248	.251	.255	.259
.20	.228	.231	.234	.237	.240	.243	.247	.250	.253	.257	.261	.264	.268	.272
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.16	0.221	0.224	0.228	0.232	0.236	0.240	0.244	0.248	0.253	0.257	0.262	0.268	0.273	0.279
.17	.235	.239	.242	.246	.250	.255	.259	.264	.269	.273	.279	.284	.290	.296
.18	.249	.253	.257	.261	.265	.270	.274	.279	.284	.289	.295	.301	.307	.313
.19	.263	.267	.271	.275	.280	.285	.290	.294	.300	.306	.311	.318	.324	.331
.20	.277	.281	.285	.290	.295	.300	.305	.310	.316	.322	.328	.334	.341	.348
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.16	0.285	0.291	0.298	0.306	0.313	0.321	0.330	0.339	0.349	0.360	0.372	0.385	0.399	0.415
.17	.302	.309	.316	.325	.332	.341	.350	.360	.371	.382	.395	.409	.424	.440
.18	.320	.328	.335	.344	.352	.361	.371	.381	.393	.405	.418	.433	.449	.466
.19	.338	.346	.353	.363	.371	.381	.391	.402	.414	.427	.442	.457	.474	.492
.20	.356	.364	.372	.382	.391	.401	.412	.424	.436	.450	.465	.481	.499	.518
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.16	0.432	0.451	0.472	0.496	0.524	0.556	0.593	0.636	0.688	0.751	0.830	0.931	1.064	0.849
.17	.459	.479	.502	.528	.557	.590	.630	.676	.731	.798	0.882	0.989	1.130	0.902
.18	.486	.508	.531	.559	.590	.625	.667	.716	.774	.845	0.934	1.047	1.197	0.955
.19	.513	.536	.561	.590	.623	.660	.704	.756	.817	.892	0.986	1.105	1.263	1.008
.20	.540	.564	.590	.621	.656	.695	.741	.796	.860	.939	1.037	1.163	1.330	1.061
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.16	0.707	0.600	0.516	0.452	0.397	0.353	0.315	0.282	0.253	0.228	0.206	0.187	0.169	0.153
.17	.751	.637	.548	.480	.422	.375	.335	.299	.269	.242	.219	.198	.180	.163
.18	.795	.675	.581	.508	.447	.397	.354	.317	.285	.257	.232	.210	.190	.172
.19	.839	.712	.613	.536	.472	.419	.374	.334	.301	.271	.245	.222	.201	.182
.20	.883	.750	.645	.564	.497	.441	.394	.352	.317	.285	.258	.233	.211	.191
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.16	0.139	0.125	0.113	0.102	0.092	0.082	0.074	0.065	0.057	0.050	0.043	0.037	0.031	0.025
.17	.147	.133	.120	.109	.098	.088	.078	.069	.061	.053	.046	.039	.033	.027
.18	.156	.141	.127	.115	.103	.093	.083	.073	.065	.057	.049	.042	.035	.028
.19	.165	.149	.135	.121	.109	.098	.087	.077	.068	.060	.051	.044	.037	.030
.20	.173	.157	.142	.128	.115	.103	.092	.081	.072	.063	.054	.046	.039	.031

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VALUES OF THE LEVEL CORRECTION, *Bl.*

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.21	0.026	0.031	0.035	0.040	0.044	0.048	0.052	0.056	0.060	0.064	0.067	0.071	0.074	0.077
.22	.028	.033	.037	.042	.046	.051	.055	.059	.063	.067	.071	.074	.078	.081
.23	.029	.034	.039	.044	.048	.053	.057	.061	.066	.070	.074	.078	.081	.085
.24	.030	.036	.041	.046	.050	.055	.060	.064	.069	.073	.077	.081	.085	.089
.25	.032	.037	.042	.048	.052	.058	.062	.067	.072	.076	.080	.084	.088	.092
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.21	0.081	0.084	0.087	0.090	0.093	0.096	0.099	0.102	0.104	0.107	0.110	0.113	0.115	0.118
.22	.084	.088	.091	.094	.097	.100	.103	.106	.109	.112	.115	.118	.121	.123
.23	.088	.092	.095	.099	.102	.105	.108	.111	.114	.117	.120	.123	.126	.129
.24	.092	.096	.099	.103	.106	.109	.113	.116	.119	.122	.126	.129	.132	.135
.25	.096	.100	.103	.107	.111	.114	.118	.121	.124	.127	.131	.134	.137	.140
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.21	0.123	0.128	0.133	0.138	0.142	0.147	0.152	0.156	0.161	0.165	0.170	0.175	0.179	0.184
.22	.129	.134	.139	.144	.149	.154	.159	.164	.169	.173	.178	.183	.188	.193
.23	.135	.140	.145	.151	.156	.161	.166	.171	.176	.181	.186	.191	.196	.201
.24	.140	.146	.152	.157	.163	.168	.173	.179	.184	.189	.194	.200	.205	.210
.25	.146	.152	.158	.164	.170	.175	.181	.186	.192	.197	.202	.208	.214	.219
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.21	0.189	0.194	0.198	0.203	0.209	0.214	0.216	0.219	0.221	0.225	0.228	0.230	0.233	0.236
.22	.198	.203	.208	.213	.218	.224	.227	.230	.232	.235	.239	.241	.244	.247
.23	.207	.212	.217	.223	.228	.234	.237	.240	.243	.246	.249	.252	.255	.258
.24	.216	.221	.227	.232	.238	.244	.247	.251	.253	.257	.260	.263	.266	.270
.25	.225	.230	.236	.242	.248	.255	.258	.261	.264	.268	.271	.274	.277	.281
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.21	0.239	0.242	0.246	0.249	0.252	0.255	0.259	0.262	0.266	0.270	0.274	0.278	0.281	0.286
.22	.251	.254	.257	.260	.264	.267	.271	.275	.279	.282	.287	.291	.295	.299
.23	.262	.265	.269	.272	.276	.279	.284	.288	.291	.295	.300	.304	.308	.313
.24	.274	.277	.281	.284	.288	.292	.296	.300	.304	.308	.313	.317	.322	.326
.25	.285	.289	.292	.296	.300	.304	.308	.312	.317	.321	.326	.330	.335	.340
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.21	0.290	0.295	0.299	0.304	0.309	0.315	0.320	0.325	0.332	0.338	0.344	0.351	0.358	0.366
.22	.304	.309	.314	.319	.324	.330	.335	.341	.348	.354	.361	.368	.375	.383
.23	.318	.323	.328	.333	.339	.345	.350	.356	.363	.370	.377	.385	.392	.400
.24	.332	.337	.342	.348	.354	.360	.366	.372	.379	.386	.393	.401	.409	.418
.25	.346	.351	.356	.362	.368	.374	.381	.388	.395	.402	.410	.418	.426	.435
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.21	0.374	0.382	0.391	0.400	0.410	0.421	0.433	0.445	0.458	0.472	0.488	0.505	0.524	0.544
.22	.392	.400	.409	.419	.430	.441	.453	.466	.480	.495	.511	.529	.549	.570
.23	.409	.419	.428	.438	.449	.461	.474	.487	.502	.517	.534	.553	.574	.596
.24	.427	.437	.446	.457	.469	.481	.494	.508	.523	.540	.558	.577	.609	.622
.25	.445	.455	.465	.476	.488	.501	.515	.529	.545	.562	.581	.601	.634	.648
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.21	0.567	0.592	0.620	0.652	0.688	0.729	0.778	0.835	0.903	0.986	1.089	1.221	1.396	1.114
.22	.594	.620	.650	.683	.721	.764	.815	.875	0.946	1.033	1.141	1.280	1.463	1.167
.23	.621	.648	.679	.714	.754	.798	.852	.915	0.989	1.080	1.193	1.338	1.529	1.220
.24	.648	.676	.709	.745	.787	.833	.889	.955	1.032	1.127	1.245	1.396	1.596	1.273
.25	.675	.705	.738	.776	.819	.868	.926	.994	1.075	1.174	1.297	1.454	1.662	1.326
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289**
0.21	0.927	0.787	0.677	0.593	0.522	0.463	0.413	0.370	0.332	0.299	0.271	0.245	0.222	0.201
.22	0.972	.825	.710	.621	.546	.485	.433	.387	.348	.314	.284	.257	.233	.211
.23	1.016	.862	.742	.649	.571	.507	.453	.405	.364	.328	.297	.268	.243	.220
.24	1.060	.900	.774	.677	.596	.529	.472	.423	.380	.342	.310	.280	.254	.230
.25	1.104	.937	.807	.706	.621	.551	.492	.440	.396	.356	.322	.292	.264	.239
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.21	0.182	0.165	0.149	0.134	0.121	0.108	0.097	0.085	0.075	0.066	0.057	0.049	0.041	0.033
.22	.191	.172	.156	.141	.126	.113	.101	.089	.079	.069	.060	.051	.042	.034
.23	.199	.180	.163	.147	.132	.118	.106	.093	.083	.072	.062	.053	.044	.036
.24	.208	.188	.170	.153	.138	.124	.110	.097	.086	.075	.065	.055	.046	.037
.25	.217	.196	.177	.160	.144	.129	.115	.101	.090	.078	.068	.058	.048	.039

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VALUES OF LEVEL CORRECTION, *Bb*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.26	0.033	0.038	0.044	0.049	0.055	0.060	0.065	0.069	0.074	0.079	0.083	0.088	0.092	0.096
.27	.034	.040	.046	.051	.057	.062	.067	.072	.077	.082	.087	.091	.095	.100
.28	.035	.041	.047	.053	.059	.064	.070	.075	.080	.085	.090	.094	.099	.103
.29	.036	.043	.049	.055	.061	.067	.072	.077	.083	.088	.093	.098	.102	.107
.30	.038	.044	.051	.057	.063	.069	.075	.080	.086	.091	.096	.101	.106	.111
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.26	0.100	0.104	0.108	0.111	0.115	0.119	0.122	0.126	0.129	0.132	0.136	0.140	0.142	0.146
.27	.104	.108	.112	.116	.120	.123	.127	.131	.134	.137	.141	.145	.148	.151
.28	.107	.112	.116	.120	.124	.128	.132	.136	.139	.142	.146	.150	.153	.157
.29	.111	.116	.120	.124	.128	.132	.136	.140	.144	.148	.152	.155	.159	.163
.30	.115	.120	.124	.129	.133	.137	.141	.145	.149	.153	.157	.161	.164	.168
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.26	0.152	0.158	0.164	0.170	0.176	0.182	0.188	0.193	0.199	0.205	0.211	0.216	0.222	0.228
.27	.158	.164	.171	.177	.183	.189	.195	.201	.207	.213	.219	.225	.231	.236
.28	.163	.170	.177	.183	.190	.196	.202	.208	.214	.221	.227	.233	.239	.245
.29	.170	.176	.183	.190	.197	.203	.209	.216	.222	.229	.235	.241	.248	.254
.30	.176	.182	.190	.196	.203	.210	.217	.223	.230	.236	.243	.250	.256	.263
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.26	0.234	0.240	0.246	0.252	0.258	0.265	0.268	0.271	0.275	0.278	0.282	0.285	0.289	0.292
.27	.243	.249	.255	.262	.268	.275	.278	.282	.285	.290	.293	.296	.300	.303
.28	.252	.258	.265	.271	.278	.285	.288	.292	.296	.300	.303	.307	.311	.314
.29	.261	.267	.274	.281	.288	.295	.299	.302	.306	.310	.314	.318	.322	.326
.30	.270	.277	.284	.291	.298	.306	.309	.313	.317	.321	.325	.329	.333	.337
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.26	0.296	0.300	0.304	0.308	0.312	0.316	0.320	0.325	0.329	0.334	0.339	0.344	0.348	0.354
.27	.308	.311	.316	.320	.324	.328	.333	.338	.342	.347	.352	.357	.362	.367
.28	.319	.323	.328	.332	.336	.340	.345	.350	.355	.360	.365	.370	.375	.381
.29	.331	.334	.339	.343	.348	.352	.357	.362	.368	.373	.378	.383	.389	.395
.30	.342	.346	.351	.355	.360	.365	.370	.375	.380	.386	.391	.397	.402	.408
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.26	0.359	0.365	0.371	0.377	0.383	0.389	0.396	0.403	0.411	0.418	0.426	0.435	0.444	0.453
.27	.373	.379	.385	.391	.398	.404	.411	.418	.427	.434	.443	.451	.461	.470
.28	.387	.393	.399	.406	.412	.419	.427	.434	.442	.450	.459	.468	.478	.487
.29	.401	.407	.414	.420	.427	.434	.442	.450	.458	.466	.475	.485	.495	.505
.30	.415	.421	.428	.435	.442	.449	.457	.465	.474	.482	.492	.502	.512	.522
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.26	0.463	0.473	0.484	0.496	0.508	0.521	0.536	0.551	0.567	0.585	0.604	0.625	0.648	0.674
.27	.480	.491	.502	.515	.527	.541	.556	.572	.589	.607	.627	.649	.673	.700
.28	.498	.510	.521	.534	.547	.561	.577	.593	.611	.630	.650	.673	.698	.725
.29	.516	.528	.539	.553	.567	.581	.597	.614	.632	.652	.674	.697	.723	.751
.30	.534	.546	.558	.572	.586	.602	.618	.635	.654	.675	.697	.721	.748	.777
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.26	0.702	0.733	0.768	0.807	0.852	0.903	0.964	1.034	1.118	1.221	1.349	1.512	1.729	1.379
.27	.729	.761	.797	.838	.885	0.937	1.001	1.074	1.161	1.268	1.400	1.570	1.795	1.432
.28	.758	.789	.827	.869	.918	0.972	1.038	1.114	1.204	1.315	1.452	1.628	1.862	1.485
.29	.783	.817	.856	.900	.952	1.006	1.075	1.154	1.247	1.362	1.504	1.687	1.928	1.538
.30	.810	.846	.886	.931	.983	1.042	1.112	1.193	1.290	1.409	1.556	1.745	1.994	1.592
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.26	1.148	0.975	0.839	0.734	0.646	0.573	0.512	0.458	0.412	0.371	0.335	0.303	0.275	0.249
.27	1.192	1.012	.871	.762	.671	.595	.531	.475	.427	.385	.348	.315	.285	.258
.28	1.236	1.050	.903	.790	.696	.617	.551	.493	.443	.399	.361	.327	.296	.268
.29	1.281	1.087	.935	.818	.721	.639	.571	.511	.459	.414	.374	.338	.307	.278
.30	1.325	1.112	.968	.847	.746	.661	.590	.529	.475	.428	.387	.350	.317	.287
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.26	0.225	0.204	0.184	0.166	0.149	0.134	0.120	0.106	0.093	0.082	0.070	0.060	0.050	0.041
.27	.234	.212	.191	.173	.155	.139	.124	.110	.097	.085	.073	.062	.052	.042
.28	.243	.220	.198	.179	.161	.144	.129	.114	.101	.088	.076	.065	.054	.044
.29	.251	.227	.205	.185	.166	.149	.133	.118	.104	.091	.079	.067	.056	.045
.30	.260	.235	.212	.192	.172	.154	.138	.122	.108	.094	.081	.069	.058	.047

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VALUES OF THE LEVEL CORRECTION, *Bb*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.31	0.039	0.046	0.052	0.059	0.065	0.071	0.077	0.083	0.089	0.094	0.099	0.104	0.109	0.114
.32	.040	.047	.054	.061	.067	.074	.080	.085	.092	.097	.103	.108	.113	.118
.33	.042	.049	.056	.063	.069	.076	.082	.088	.094	.100	.106	.111	.116	.122
.34	.043	.050	.057	.065	.071	.078	.085	.091	.097	.103	.109	.115	.120	.125
.35	.044	.052	.059	.066	.074	.080	.087	.093	.100	.106	.112	.118	.124	.129
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.31	0.119	0.124	0.128	0.133	0.137	0.141	0.146	0.150	0.154	0.158	0.162	0.166	0.170	0.174
.32	.123	.128	.132	.137	.142	.146	.150	.155	.159	.163	.167	.172	.175	.180
.33	.127	.132	.137	.142	.146	.150	.155	.160	.164	.168	.173	.177	.181	.185
.34	.131	.136	.141	.146	.151	.155	.160	.165	.169	.173	.178	.182	.186	.191
.35	.134	.140	.145	.150	.155	.160	.164	.169	.174	.178	.183	.188	.192	.196
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.31	0.181	0.188	0.196	0.203	0.210	0.217	0.224	0.231	0.238	0.244	0.251	0.258	0.265	0.272
.32	.187	.194	.202	.210	.217	.224	.231	.238	.245	.252	.259	.266	.273	.280
.33	.193	.201	.209	.216	.224	.231	.238	.246	.253	.260	.267	.275	.282	.289
.34	.199	.207	.215	.223	.231	.238	.245	.253	.260	.268	.275	.283	.290	.298
.35	.205	.213	.221	.229	.237	.245	.253	.260	.268	.276	.283	.291	.299	.307
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.31	0.279	0.286	0.293	0.300	0.308	0.316	0.319	0.323	0.327	0.332	0.336	0.340	0.344	0.348
.32	.288	.295	.302	.310	.318	.326	.330	.334	.338	.342	.346	.351	355	.360
.33	.297	.304	.312	.320	.328	.336	.340	.344	.348	.353	.357	.362	366	.371
.34	.306	.313	.321	.329	.338	.346	.350	.354	.359	.364	.368	.372	377	.382
.35	.315	.323	.331	.339	.348	.356	.360	.365	.369	.374	.379	.383	388	.393
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.31	0.353	0.358	0.363	0.367	0.372	0.377	0.382	0.388	0.393	0.398	0.404	0.410	0.415	0.422
.32	.365	.369	.374	.379	.384	.389	.394	.400	.406	.411	.417	.423	.429	.435
.33	.376	.381	.386	.391	.396	.401	.407	.412	.418	.424	.430	.436	.442	.449
.34	.388	.392	.398	.403	.408	.413	.419	.425	.431	.437	.443	.449	.456	.463
.35	.399	.404	.410	.414	.420	.425	.431	.438	.444	.450	.456	.463	.469	.476
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.31	0.428	0.435	0.442	0.449	0.457	0.464	0.472	0.480	0.490	0.498	0.508	0.518	0.529	0.540
.32	.442	.449	.456	.464	.471	.479	.488	.496	.506	.515	.524	.535	.546	.557
.33	.456	.463	.471	.478	.486	.494	.503	.512	.522	.531	.541	.552	.563	.575
.34	.470	.477	.485	.493	.501	.509	.518	.527	.537	.547	.557	.568	.580	.592
.35	.484	.491	.500	.507	.516	.524	.533	.542	.553	.563	.574	.585	.597	.609
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.31	0.552	0.564	0.577	0.591	0.606	0.622	0.639	0.657	0.676	0.697	0.720	0.746	0.773	0.803
.32	.570	.582	.595	.610	.625	.642	.659	.678	.698	.720	.744	.770	.798	.829
.33	.587	.600	.614	.629	.645	.662	.680	.699	.720	.742	.767	.794	.823	.855
.34	.605	.619	.632	.648	.664	.682	.700	.720	.742	.765	.790	.818	.848	.881
.35	.623	.637	.651	.667	.684	.702	.721	.741	.763	.787	.813	.842	.873	.907
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.31	0.837	0.874	0.915	0.963	1.016	1.077	1.149	1.233	1.333	1.456	1.608	1.803	2.061	1.645
.32	.864	.902	0.945	0.994	1.049	1.112	1.186	1.273	1.376	1.503	1.660	1.861	2.128	1.698
.33	.891	.930	0.974	1.025	1.082	1.147	1.223	1.313	1.419	1.550	1.712	1.919	2.194	1.751
.34	.918	.959	1.004	1.056	1.114	1.181	1.260	1.353	1.462	1.597	1.764	1.977	2.261	1.804
.35	.945	.987	1.033	1.087	1.147	1.216	1.297	1.392	1.505	1.644	1.815	2.036	2.327	1.857
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.31	1.369	1.162	1.000	0.874	0.770	0.683	0.610	0.546	0.491	0.442	0.400	0.362	0.328	0.297
.32	1.413	1.200	1.032	.903	.795	.705	.630	.564	.507	.456	.413	.373	.338	.306
.33	1.457	1.237	1.064	.931	.820	.727	.649	.581	.522	.471	.426	.385	.349	.316
.34	1.501	1.275	1.097	.959	.845	.749	.669	.599	.538	.485	.439	.397	.359	.325
.35	1.546	1.312	1.129	.987	.870	.771	.689	.616	.554	.499	.452	.408	.370	.335
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.31	0.260	0.243	0.219	0.198	0.178	0.160	0.143	0.126	0.111	0.097	0.084	0.072	0.060	0.048
.32	.277	.251	.227	.204	.184	.165	.147	.130	.115	.100	.087	.074	.062	.050
.33	.286	.259	.234	.211	.189	.170	.152	.134	.118	.104	.089	.076	.064	.051
.34	.295	.267	.241	.217	.195	.175	.156	.138	.122	.107	.092	.079	.066	.053
.35	.303	.274	.248	.224	.201	.180	.161	.142	.126	.110	.095	.081	.068	.055

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VALUES OF THE LEVEL CORRECTION, *Bb*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.36	0.045	0.053	0.061	0.068	0.076	0.083	0.090	0.096	0.103	0.109	0.116	0.121	0.127	0.133
.37	.047	.055	.062	.070	.078	.085	.092	.099	.106	.112	.119	.125	.131	.136
.38	.048	.056	.064	.072	.080	.087	.095	.101	.109	.115	.122	.128	.134	.140
.39	.049	.058	.066	.074	.082	.090	.097	.104	.112	.118	.125	.131	.138	.144
.40	.050	.059	.068	.076	.084	.092	.100	.107	.114	.121	.128	.135	.141	.148
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.36	0.138	0.144	0.149	0.154	0.159	0.164	0.169	0.174	0.179	0.183	0.188	0.193	0.197	0.202
.37	.142	.148	.153	.159	.164	.169	.174	.179	.184	.188	.194	.198	.203	.208
.38	.146	.152	.157	.163	.168	.173	.179	.184	.189	.193	.199	.204	.208	.213
.39	.150	.156	.161	.167	.173	.178	.183	.189	.194	.198	.204	.209	.214	.219
.40	.154	.160	.165	.172	.177	.182	.188	.194	.199	.203	.209	.214	.219	.224
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.36	0.211	0.219	0.228	0.236	0.244	0.252	0.260	0.268	0.276	0.284	0.292	0.300	0.307	0.315
.37	.216	.225	.234	.242	.251	.259	.267	.275	.283	.292	.300	.309	.316	.324
.38	.222	.231	.240	.249	.258	.266	.274	.283	.291	.299	.308	.316	.324	.333
.39	.228	.237	.246	.255	.264	.273	.282	.290	.299	.307	.316	.324	.333	.342
.40	.234	.243	.253	.262	.271	.280	.289	.298	.306	.315	.324	.333	.342	.350
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.36	0.324	0.332	0.340	0.349	0.357	0.367	0.371	0.375	0.380	0.385	0.390	0.394	0.400	0.405
.37	.333	.341	.350	.359	.367	.377	.381	.385	.391	.396	.400	.405	.411	.416
.38	.342	.350	.359	.368	.377	.387	.391	.396	.401	.407	.411	.416	.422	.427
.39	.351	.360	.369	.378	.387	.397	.402	.406	.412	.417	.422	.427	.433	.439
.40	.360	.369	.378	.388	.397	.407	.412	.417	.423	.428	.433	.438	.444	.450
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.36	0.410	0.415	0.421	0.426	0.432	0.437	0.444	0.450	0.456	0.463	0.469	0.476	0.483	0.490
.37	.422	.427	.433	.438	.444	.449	.456	.462	.469	.475	.482	.489	.496	.503
.38	.433	.438	.445	.450	.456	.461	.469	.475	.482	.488	.495	.502	.509	.517
.39	.445	.450	.456	.462	.468	.473	.481	.488	.494	.501	.508	.515	.523	.531
.40	.456	.461	.468	.474	.480	.486	.493	.500	.507	.514	.521	.529	.536	.544
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.36	0.497	0.505	0.514	0.522	0.530	0.539	0.549	0.558	0.568	0.579	0.590	0.602	0.614	0.627
.37	.511	.519	.528	.536	.545	.554	.564	.574	.584	.595	.606	.619	.631	.644
.38	.525	.533	.542	.551	.560	.569	.579	.589	.600	.611	.623	.635	.648	.662
.39	.539	.547	.556	.565	.574	.584	.594	.604	.616	.627	.639	.652	.665	.679
.40	.553	.561	.570	.580	.589	.599	.610	.620	.632	.643	.656	.669	.682	.696
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.36	0.640	0.655	0.670	0.687	0.703	0.722	0.742	0.762	0.785	0.810	0.837	0.866	0.898	0.933
.37	.658	.673	.688	.706	.723	.742	.762	.784	.807	.832	.860	.890	.923	0.959
.38	.676	.692	.707	.725	.742	.762	.783	.805	.829	.855	.883	.914	.948	0.985
.39	.694	.710	.725	.744	.762	.782	.803	.826	.851	.877	.906	.938	.973	1.010
.40	.712	.728	.744	.763	.782	.802	.824	.847	.873	.902	.930	.962	.998	1.036
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.36	0.972	1.015	1.063	1.118	1.180	1.251	1.334	1.432	1.548	1.691	1.867	2.094	2.394	1.910
.37	0.999	1.043	1.092	1.149	1.213	1.286	1.371	1.472	1.591	1.738	1.919	2.152	2.460	1.963
.38	1.026	1.071	1.122	1.180	1.245	1.320	1.408	1.512	1.634	1.784	1.971	2.210	2.527	2.016
.39	1.053	1.099	1.151	1.211	1.278	1.355	1.445	1.552	1.677	1.831	2.023	2.268	2.593	2.069
.40	1.080	1.128	1.181	1.242	1.311	1.390	1.482	1.591	1.720	1.878	2.075	2.326	2.660	2.122
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.36	1.590	1.350	1.161	1.016	0.895	0.793	0.708	0.634	0.570	0.513	0.464	0.420	0.380	0.345
.37	1.634	1.387	1.194	1.044	.920	.815	.728	.652	.586	.528	.477	.432	.391	.354
.38	1.678	1.425	1.226	1.072	.945	.838	.748	.669	.602	.542	.490	.443	.402	.364
.39	1.722	1.462	1.258	1.100	.969	.860	.768	.687	.617	.556	.503	.455	.412	.373
.40	1.766	1.500	1.290	1.129	.994	.882	.787	.705	.633	.570	.516	.467	.423	.383
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.36	0.312	0.280	0.255	0.230	0.207	0.185	0.166	0.146	0.129	0.113	0.098	0.083	0.069	0.056
.37	.321	.290	.262	.236	.212	.191	.170	.150	.133	.116	.100	.085	.071	.058
.38	.329	.298	.269	.243	.218	.196	.175	.154	.136	.119	.103	.088	.073	.059
.39	.338	.306	.276	.249	.224	.201	.179	.158	.140	.122	.106	.090	.075	.061
.40	.347	.314	.283	.256	.230	.206	.184	.162	.144	.126	.108	.092	.077	.062

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VALUES OF THE LEVEL CORRECTION, *Bb*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.41	0.052	0.061	0.069	0.078	0.086	0.094	0.102	0.109	0.117	0.124	0.132	0.138	0.145	0.151
.42	.053	.062	.071	.080	.088	.097	.105	.112	.120	.127	.135	.142	.148	.155
.43	.054	.064	.073	.082	.090	.099	.107	.115	.123	.130	.138	.145	.152	.159
.44	.055	.065	.074	.084	.092	.101	.110	.117	.126	.133	.141	.148	.155	.162
.45	.057	.067	.076	.086	.094	.104	.112	.120	.129	.136	.144	.152	.159	.166
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.41	0.157	0.164	0.170	0.176	0.182	0.187	0.193	0.198	0.204	0.209	0.214	0.220	0.225	0.230
.42	.161	.168	.174	.180	.186	.192	.197	.203	.209	.214	.220	.225	.230	.236
.43	.165	.172	.178	.184	.190	.196	.202	.208	.214	.219	.225	.230	.236	.241
.44	.169	.176	.182	.189	.195	.201	.207	.213	.219	.224	.230	.236	.241	.247
.45	.173	.180	.186	.193	.199	.205	.212	.218	.224	.229	.235	.241	.247	.252
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.41	0.240	0.249	0.259	0.268	0.278	0.287	0.296	0.305	0.314	0.323	0.332	0.341	0.350	0.359
.42	.246	.255	.265	.275	.285	.294	.303	.312	.322	.331	.340	.349	.359	.368
.43	.252	.261	.272	.282	.292	.301	.310	.320	.329	.339	.348	.358	.367	.377
.44	.257	.268	.278	.288	.298	.308	.318	.327	.337	.347	.356	.366	.376	.385
.45	.263	.274	.284	.295	.305	.315	.325	.335	.345	.355	.364	.374	.384	.394
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.41	0.369	0.378	0.387	0.397	0.407	0.417	0.422	0.428	0.433	0.439	0.444	0.449	0.455	0.461
.42	.378	.387	.397	.407	.417	.428	.433	.438	.443	.449	.455	.460	.466	.473
.43	.387	.396	.406	.417	.427	.438	.443	.449	.454	.460	.466	.471	.477	.484
.44	.396	.406	.416	.426	.437	.448	.453	.459	.465	.471	.477	.482	.488	.495
.45	.405	.415	.425	.436	.447	.458	.464	.469	.475	.482	.487	.493	.500	.506
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.41	0.467	0.473	0.480	0.485	0.492	0.498	0.506	0.512	0.520	0.527	0.534	0.542	0.550	0.558
.42	.479	.485	.491	.497	.504	.510	.518	.525	.533	.540	.547	.555	.563	.571
.43	.490	.496	.503	.509	.516	.522	.530	.538	.545	.553	.560	.568	.576	.585
.44	.502	.508	.515	.521	.528	.534	.543	.550	.558	.565	.573	.582	.590	.599
.45	.513	.519	.526	.533	.540	.547	.555	.562	.571	.578	.586	.595	.603	.612
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.41	0.567	0.575	0.585	0.594	0.604	0.614	0.625	0.636	0.647	0.659	0.672	0.686	0.699	0.714
.42	.580	.589	.599	.609	.619	.629	.640	.651	.663	.675	.688	.702	.717	.731
.43	.594	.603	.613	.623	.633	.644	.655	.666	.679	.691	.705	.719	.734	.749
.44	.608	.617	.627	.638	.648	.659	.670	.682	.695	.708	.721	.736	.751	.766
.45	.622	.631	.642	.652	.663	.674	.686	.698	.711	.724	.738	.752	.768	.783
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.41	0.730	0.746	0.763	0.782	0.801	0.822	0.845	0.868	0.894	0.922	0.953	0.986	1.023	1.062
.42	.748	.764	.781	.801	.821	.842	.865	.890	.916	0.945	0.976	1.010	1.047	1.088
.43	.765	.783	.800	.820	.840	.862	.886	.911	.938	0.967	0.999	1.034	1.072	1.114
.44	.783	.801	.819	.839	.860	.882	.906	.932	.960	0.990	1.023	1.058	1.097	1.140
.45	.801	.819	.837	.858	.879	.902	.927	.953	.981	1.012	1.046	1.082	1.122	1.166
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.41	1.107	1.156	1.210	1.273	1.344	1.424	1.519	1.631	1.763	1.925	2.127	2.385	2.726	2.175
.42	1.134	1.184	1.240	1.304	1.376	1.459	1.557	1.671	1.806	1.972	2.179	2.443	2.793	2.228
.43	1.161	1.212	1.270	1.335	1.409	1.494	1.594	1.711	1.849	2.019	2.230	2.501	2.859	2.281
.44	1.188	1.240	1.299	1.366	1.442	1.528	1.631	1.750	1.892	2.066	2.282	2.559	2.926	2.334
.45	1.215	1.269	1.329	1.397	1.475	1.563	1.668	1.790	1.935	2.113	2.334	2.617	2.992	2.387
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.41	1.811	1.537	1.323	1.157	1.019	0.904	0.807	0.722	0.649	0.585	0.529	0.478	0.433	0.392
.42	1.855	1.575	1.355	1.185	1.044	.926	.827	.739	.665	.599	.542	.490	.444	.402
.43	1.899	1.612	1.387	1.213	1.069	.948	.846	.757	.681	.613	.555	.502	.455	.412
.44	1.943	1.650	1.420	1.241	1.093	.970	.866	.775	.697	.627	.568	.513	.465	.421
.45	1.987	1.687	1.452	1.270	1.118	.992	.886	.792	.712	.642	.580	.525	.476	.431
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.41	0.355	0.324	0.290	0.262	0.235	0.211	0.189	0.166	0.147	0.129	0.111	0.095	0.079	0.064
.42	.364	.329	.297	.268	.241	.216	.193	.171	.151	.132	.114	.097	.081	.066
.43	.373	.337	.304	.275	.247	.221	.198	.175	.154	.135	.117	.099	.083	.067
.44	.381	.345	.312	.281	.253	.227	.202	.179	.158	.138	.119	.102	.085	.069
.45	.390	.353	.319	.288	.258	.232	.207	.183	.162	.141	.122	.104	.087	.070

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VALUES OF THE LEVEL CORRECTION, *Bl.*

Constant.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign. For reflection observations the sign is reversed.

	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.46	0.058	0.068	0.078	0.087	0.097	0.106	0.115	0.123	0.132	0.139	0.148	0.155	0.162	0.170
.47	.059	.070	.079	.089	.099	.108	.117	.125	.134	.142	.151	.158	.166	.173
.48	.060	.071	.081	.091	.101	.110	.119	.128	.137	.145	.154	.162	.169	.177
.49	.062	.073	.083	.093	.103	.113	.122	.131	.140	.148	.157	.165	.173	.181
.50	.063	.074	.085	.095	.105	.115	.124	.134	.143	.151	.160	.169	.176	.184
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.46	0.177	0.184	0.190	0.197	0.204	0.210	0.216	0.223	0.229	0.234	0.241	0.247	0.252	0.258
.47	.180	.188	.195	.201	.208	.214	.221	.227	.234	.239	.246	.252	.258	.264
.48	.184	.192	.199	.205	.213	.219	.226	.232	.239	.244	.251	.257	.263	.269
.49	.188	.196	.203	.210	.217	.223	.230	.237	.244	.249	.256	.263	.269	.275
.50	.192	.200	.207	.214	.222	.228	.235	.242	.249	.255	.262	.268	.274	.280
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.46	0.269	0.280	0.291	0.301	0.312	0.322	0.332	0.342	0.352	0.362	0.373	0.383	0.393	0.403
.47	.275	.286	.297	.308	.319	.329	.339	.350	.360	.370	.381	.391	.401	.412
.48	.281	.292	.303	.314	.325	.336	.347	.357	.368	.378	.389	.399	.410	.420
.49	.287	.298	.310	.321	.332	.343	.354	.365	.375	.386	.397	.408	.418	.429
.50	.292	.304	.316	.328	.339	.350	.361	.372	.383	.394	.405	.416	.427	.438
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.46	0.414	0.424	0.435	0.446	0.457	0.468	0.474	0.480	0.486	0.492	0.498	0.504	0.511	0.517
.47	.423	.433	.444	.455	.467	.478	.484	.490	.496	.503	.509	.515	.522	.528
.48	.432	.443	.454	.465	.477	.489	.494	.501	.507	.514	.520	.526	.533	.540
.49	.441	.452	.463	.475	.487	.499	.505	.511	.517	.524	.531	.537	.544	.551
.50	.450	.461	.472	.484	.496	.509	.515	.522	.528	.535	.542	.548	.555	.562
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.46	0.524	0.531	0.538	0.544	0.552	0.559	0.567	0.575	0.583	0.591	0.599	0.608	0.616	0.626
.47	.536	.542	.550	.556	.564	.571	.579	.588	.596	.604	.612	.621	.630	.639
.48	.548	.554	.562	.568	.576	.583	.591	.600	.609	.617	.625	.634	.643	.653
.49	.559	.565	.573	.580	.588	.595	.604	.612	.621	.630	.638	.648	.657	.665
.50	.570	.577	.585	.592	.600	.608	.616	.625	.634	.642	.652	.661	.670	.680
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.46	0.636	0.645	0.656	0.667	0.678	0.689	0.701	0.713	0.725	0.740	0.754	0.769	0.785	0.801
.47	.649	.659	.670	.681	.692	.704	.716	.728	.742	.756	.770	.786	.802	.818
.48	.663	.673	.684	.695	.707	.719	.731	.744	.758	.772	.787	.803	.819	.836
.49	.677	.687	.699	.710	.722	.734	.747	.760	.774	.788	.803	.819	.836	.853
.50	.691	.701	.713	.725	.737	.749	.762	.775	.790	.804	.820	.836	.853	.870
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.46	0.819	0.837	0.856	0.877	0.899	0.922	0.948	0.974	1.003	1.035	1.069	1.106	1.147	1.192
.47	.837	.855	.875	.896	.918	0.942	0.968	0.995	1.025	1.058	1.092	1.130	1.172	1.218
.48	.854	.874	.893	.915	.938	0.962	0.989	1.007	1.047	1.080	1.116	1.154	1.197	1.244
.49	.872	.891	.912	.935	.957	0.982	1.009	1.028	1.069	1.102	1.139	1.178	1.222	1.270
.50	.890	.910	.930	.954	.977	1.002	1.030	1.049	1.091	1.125	1.162	1.202	1.247	1.296
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.46	1.242	1.297	1.358	1.428	1.507	1.598	1.705	1.830	1.978	2.160	2.386	2.675	3.059	2.440
.47	1.269	1.325	1.388	1.459	1.540	1.632	1.742	1.870	2.021	2.207	2.438	2.733	3.125	2.493
.48	1.296	1.353	1.417	1.490	1.573	1.667	1.779	1.909	2.064	2.254	2.490	2.792	3.192	2.546
.49	1.323	1.381	1.447	1.521	1.606	1.702	1.816	1.949	2.107	2.301	2.542	2.850	3.258	2.599
.50	1.350	1.409	1.476	1.552	1.639	1.737	1.853	1.989	2.150	2.348	2.594	2.908	3.325	2.652
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.46	2.031	1.725	1.483	1.298	1.143	1.014	0.905	0.810	0.728	0.656	0.593	0.537	0.486	0.440
.47	2.076	1.762	1.516	1.326	1.168	1.036	.925	.828	.744	.670	.606	.548	.497	.450
.48	2.120	1.800	1.548	1.355	1.193	1.058	.945	.845	.760	.684	.619	.560	.507	.459
.49	2.164	1.837	1.580	1.383	1.218	1.080	.964	.863	.776	.699	.632	.572	.518	.469
.50	2.208	1.876	1.613	1.411	1.243	1.102	.984	.880	.792	.713	.645	.584	.528	.478
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.46	0.399	0.361	0.326	0.294	0.264	0.237	0.212	0.187	0.165	0.144	0.125	0.106	0.089	0.072
.47	.407	.368	.333	.300	.270	.242	.216	.191	.169	.148	.127	.109	.091	.073
.48	.416	.376	.340	.307	.276	.247	.221	.195	.172	.151	.130	.111	.093	.075
.49	.425	.384	.347	.313	.281	.252	.225	.199	.176	.154	.133	.113	.095	.076
.50	.434	.392	.354	.320	.287	.258	.230	.203	.180	.157	.136	.116	.096	.078

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TABLE III.

COLLIMATION.

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VALUES OF THE COLLIMATION CORRECTION, *Cc*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.01	0.014	0.014	0.014	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.012	0.012	0.012	0.012
.02	.029	.028	.028	.027	.027	.026	.026	.026	.025	.025	.025	.024	.024	.024
.03	.043	.043	.042	.041	.041	.040	.039	.039	.038	.038	.037	.037	.036	.036
.04	.058	.057	.056	.055	.054	.053	.052	.052	.051	.050	.050	.049	.048	.048
.05	.072	.071	.070	.068	.067	.066	.065	.064	.064	.063	.062	.061	.060	.060
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.01	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
.02	.024	.023	.023	.023	.023	.022	.022	.022	.022	.022	.021	.021	.021	.021
.03	.036	.035	.035	.034	.034	.034	.034	.033	.033	.033	.033	.032	.032	.032
.04	.047	.047	.046	.046	.045	.045	.045	.044	.044	.044	.043	.043	.043	.042
.05	.059	.058	.058	.057	.057	.056	.056	.055	.055	.054	.054	.054	.053	.053
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.01	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
.02	.021	.021	.021	.020	.020	.020	.020	.020	.020	.020	.020	.020	.020	.020
.03	.032	.031	.031	.031	.031	.030	.030	.030	.030	.030	.030	.030	.030	.030
.04	.042	.041	.041	.041	.041	.040	.040	.040	.040	.040	.040	.040	.040	.040
.05	.052	.052	.051	.051	.051	.050	.050	.050	.050	.050	.050	.050	.050	.051
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.01	0.010	0.010	0.010	0.010	0.010	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
.02	.020	.020	.021	.021	.021	.021	.021	.022	.022	.022	.022	.022	.023	.023
.03	.031	.031	.031	.031	.032	.032	.032	.033	.033	.033	.033	.034	.034	.034
.04	.041	.041	.041	.042	.042	.043	.043	.043	.044	.044	.045	.045	.045	.046
.05	.051	.051	.052	.052	.053	.054	.054	.054	.055	.055	.056	.056	.057	.057
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.01	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.013	0.013	0.013	0.013	0.013	0.014
.02	.023	.023	.024	.024	.024	.024	.025	.025	.025	.026	.026	.026	.027	.027
.03	.034	.035	.035	.036	.036	.036	.037	.037	.038	.039	.039	.040	.040	.041
.04	.046	.047	.047	.048	.048	.049	.049	.050	.051	.051	.052	.053	.054	.055
.05	.058	.058	.059	.060	.060	.061	.062	.062	.063	.064	.065	.066	.067	.068
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.01	0.014	0.014	0.014	0.015	0.015	0.015	0.016	0.016	0.016	0.017	0.017	0.017	0.018	0.018
.02	.028	.028	.029	.029	.030	.030	.031	.032	.032	.033	.034	.035	.036	.037
.03	.042	.042	.043	.044	.045	.046	.047	.048	.049	.050	.051	.052	.054	.055
.04	.056	.057	.058	.059	.060	.061	.062	.063	.065	.066	.068	.070	.071	.073
.05	.069	.070	.072	.073	.075	.076	.078	.079	.081	.083	.085	.087	.089	.091
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.01	0.019	0.019	0.020	0.021	0.021	0.022	0.023	0.024	0.024	0.025	0.027	0.028	0.029	0.031
.02	.038	.039	.040	.041	.042	.044	.045	.047	.049	.051	.053	.056	.058	.061
.03	.056	.058	.060	.062	.064	.066	.068	.071	.074	.077	.080	.084	.088	.092
.04	.075	.077	.080	.083	.085	.088	.091	.095	.098	.102	.107	.111	.117	.122
.05	.094	.097	.100	.103	.106	.110	.114	.118	.122	.127	.133	.139	.145	.153
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.01	0.032	0.034	0.036	0.038	0.041	0.044	0.048	0.052	0.057	0.063	0.071	0.081	0.094	0.097
.02	.064	.068	.072	.077	.082	.088	.095	.104	.114	.126	.142	.162	.188	.195
.03	.097	.102	.108	.115	.123	.133	.144	.156	.172	.190	.213	.243	.282	.293
.04	.129	.136	.144	.154	.164	.177	.191	.208	.228	.253	.284	.324	.377	.390
.05	.161	.170	.180	.192	.205	.220	.238	.260	.285	.316	.355	.404	.470	.487
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.01	0.083	0.073	0.065	0.058	0.053	0.048	0.045	0.042	0.039	0.036	0.034	0.032	0.031	0.029
.02	.167	.146	.129	.116	.106	.097	.090	.083	.078	.073	.068	.065	.062	.059
.03	.251	.219	.195	.175	.159	.146	.135	.125	.117	.110	.104	.098	.093	.088
.04	.334	.292	.259	.233	.212	.194	.180	.167	.156	.146	.138	.130	.124	.118
.05	.416	.364	.323	.291	.265	.243	.224	.208	.195	.183	.172	.163	.154	.147
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.01	0.028	0.027	0.026	0.025	0.024	0.023	0.022	0.021	0.021	0.020	0.019	0.019	0.018	0.018
.02	.056	.054	.051	.049	.048	.046	.044	.043	.041	.040	.039	.038	.037	.036
.03	.084	.081	.077	.074	.071	.069	.067	.064	.062	.060	.059	.057	.055	.054
.04	.112	.107	.103	.099	.095	.092	.089	.086	.083	.081	.078	.076	.074	.072
.05	.140	.134	.128	.123	.119	.114	.110	.107	.103	.100	.097	.095	.092	.090

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VALUES OF THE COLLIMATION CORRECTION, *Cc*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.06	0.087	0.085	0.084	0.082	0.081	0.080	0.079	0.078	0.076	0.075	0.074	0.073	0.073	0.072
.07	.101	.099	.097	.096	.095	.093	.092	.090	.089	.088	.087	.086	.085	.084
.08	.115	.113	.111	.110	.108	.106	.105	.103	.102	.100	.099	.098	.097	.096
.09	.130	.128	.125	.123	.121	.120	.118	.116	.114	.113	.112	.110	.109	.107
.10	.144	.142	.139	.137	.135	.133	.131	.129	.127	.125	.124	.122	.121	.119
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.06	0.071	0.070	0.070	0.069	0.068	0.067	0.067	0.066	0.066	0.065	0.065	0.064	0.064	0.063
.07	.083	.082	.081	.080	.079	.079	.078	.077	.077	.076	.076	.075	.075	.074
.08	.095	.094	.092	.091	.091	.090	.089	.088	.088	.087	.087	.086	.085	.085
.09	.106	.105	.104	.103	.102	.101	.100	.099	.098	.098	.097	.096	.096	.095
.10	.118	.117	.116	.114	.113	.112	.111	.110	.110	.109	.108	.107	.106	.106
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.06	0.063	0.062	0.062	0.061	0.061	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.060	0.061
.07	.073	.072	.072	.071	.071	.071	.070	.070	.070	.070	.070	.070	.070	.071
.08	.084	.083	.082	.082	.081	.081	.080	.080	.080	.080	.080	.080	.081	.081
.09	.094	.093	.092	.092	.091	.091	.090	.090	.090	.090	.090	.090	.091	.091
.10	.105	.104	.103	.102	.101	.101	.100	.100	.100	.100	.100	.100	.101	.101
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.06	0.061	0.062	0.062	0.063	0.063	0.064	0.065	0.065	0.066	0.066	0.067	0.067	0.068	0.069
.07	.071	.072	.072	.073	.074	.075	.075	.076	.077	.077	.078	.079	.079	.080
.08	.081	.082	.083	.084	.085	.086	.086	.087	.088	.088	.089	.090	.090	.091
.09	.092	.092	.093	.094	.095	.096	.097	.098	.098	.099	.100	.101	.102	.103
.10	.102	.103	.104	.105	.106	.107	.108	.109	.109	.110	.111	.112	.113	.114
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.06	0.069	0.070	0.071	0.072	0.072	0.073	0.074	0.075	0.076	0.077	0.078	0.079	0.081	0.082
.07	.081	.082	.082	.083	.084	.085	.086	.088	.089	.090	.091	.093	.094	.096
.08	.092	.093	.094	.095	.096	.098	.099	.100	.101	.103	.104	.106	.108	.109
.09	.104	.105	.106	.107	.108	.110	.111	.113	.114	.116	.117	.119	.121	.123
.10	.115	.116	.118	.119	.120	.122	.123	.125	.127	.128	.130	.132	.134	.136
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.06	0.084	0.085	0.086	0.088	0.090	0.091	0.093	0.095	0.097	0.100	0.102	0.104	0.107	0.110
.07	.097	.099	.101	.102	.104	.107	.109	.111	.114	.116	.119	.122	.125	.128
.08	.111	.113	.115	.117	.119	.122	.124	.127	.130	.133	.136	.139	.143	.147
.09	.125	.127	.129	.132	.134	.137	.140	.143	.146	.149	.153	.157	.161	.165
.10	.139	.141	.144	.146	.149	.152	.155	.159	.162	.166	.170	.174	.178	.183
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.06	0.113	0.116	0.120	0.124	0.128	0.132	0.136	0.141	0.147	0.153	0.159	0.167	0.175	0.184
.07	.132	.136	.140	.144	.149	.154	.159	.165	.172	.179	.186	.195	.204	.214
.08	.151	.155	.160	.164	.170	.175	.182	.189	.196	.204	.213	.222	.233	.244
.09	.169	.174	.179	.185	.191	.198	.205	.212	.220	.229	.239	.250	.262	.275
.10	.188	.194	.199	.206	.212	.220	.227	.236	.245	.255	.266	.278	.291	.306
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.06	0.193	0.204	0.216	0.231	0.246	0.265	0.286	0.312	0.343	0.380	0.426	0.486	0.564	0.585
.07	.226	.238	.252	.269	.287	.309	.334	.364	.400	.443	.497	.566	.659	.682
.08	.258	.272	.288	.307	.328	.353	.382	.416	.456	.506	.568	.647	.753	.780
.09	.290	.306	.325	.345	.369	.397	.430	.468	.514	.569	.639	.728	.847	.877
.10	.322	.340	.360	.384	.410	.441	.477	.519	.570	.632	.709	.808	.940	.974
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.06	0.501	0.438	0.389	0.350	0.318	0.292	0.269	0.250	0.234	0.219	0.207	0.195	0.186	0.177
.07	.584	.510	.453	.408	.371	.340	.314	.292	.273	.256	.241	.228	.216	.206
.08	.667	.583	.518	.466	.424	.388	.359	.333	.312	.292	.276	.261	.247	.235
.09	.751	.656	.583	.524	.477	.437	.404	.375	.350	.329	.310	.292	.278	.265
.10	.833	.728	.647	.582	.529	.485	.448	.416	.389	.365	.344	.325	.309	.294
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.06	0.168	0.161	0.154	0.148	0.143	0.138	0.133	0.128	0.124	0.121	0.117	0.114	0.111	0.108
.07	.196	.188	.180	.173	.166	.160	.155	.150	.145	.141	.137	.132	.129	.126
.08	.224	.215	.206	.198	.190	.183	.177	.171	.166	.161	.156	.151	.147	.144
.09	.252	.241	.232	.222	.214	.206	.199	.193	.187	.181	.175	.170	.166	.161
.10	.280	.268	.257	.247	.238	.229	.221	.214	.207	.201	.195	.189	.184	.179

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VALUES OF THE COLLIMATION CORRECTION, *Cc*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant, between 275° and 303° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.11	0.159	0.156	0.153	0.151	0.148	0.146	0.144	0.142	0.140	0.138	0.136	0.134	0.133	0.131
.12	.173	.170	.167	.164	.162	.159	.157	.155	.152	.150	.149	.147	.145	.143
.13	.187	.184	.181	.178	.175	.172	.170	.168	.165	.163	.161	.159	.157	.155
.14	.202	.198	.195	.192	.189	.186	.183	.180	.178	.176	.173	.171	.169	.167
.15	.216	.213	.209	.206	.202	.199	.196	.193	.191	.188	.186	.183	.181	.179
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.11	0.130	0.128	0.127	0.126	0.125	0.124	0.122	0.121	0.120	0.119	0.119	0.118	0.117	0.116
.12	.142	.140	.139	.137	.136	.135	.134	.132	.131	.130	.129	.129	.128	.127
.13	.153	.152	.150	.149	.147	.146	.145	.143	.142	.141	.140	.139	.138	.138
.14	.165	.163	.162	.160	.159	.157	.156	.155	.153	.152	.151	.150	.149	.148
.15	.177	.175	.173	.172	.170	.168	.167	.166	.164	.163	.162	.161	.160	.159
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.11	0.115	0.114	0.113	0.112	0.111	0.111	0.110	0.110	0.110	0.110	0.110	0.110	0.111	0.111
.12	.126	.124	.123	.122	.122	.121	.120	.120	.120	.120	.120	.120	.121	.121
.13	.136	.135	.133	.132	.132	.131	.131	.130	.130	.130	.130	.131	.131	.132
.14	.146	.145	.144	.143	.142	.141	.141	.140	.140	.140	.140	.141	.141	.142
.15	.157	.155	.154	.153	.152	.151	.151	.150	.150	.150	.150	.151	.151	.152
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.11	0.112	0.113	0.114	0.115	0.116	0.118	0.119	0.119	0.120	0.121	0.122	0.123	0.125	0.126
.12	.122	.123	.124	.125	.127	.128	.129	.130	.131	.132	.133	.134	.136	.137
.13	.132	.133	.135	.136	.137	.139	.140	.141	.142	.143	.145	.146	.147	.148
.14	.143	.144	.145	.146	.148	.150	.151	.152	.153	.154	.156	.157	.158	.160
.15	.153	.154	.155	.157	.158	.160	.162	.163	.164	.165	.167	.168	.170	.171
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.11	0.127	0.128	0.130	0.131	0.133	0.134	0.136	0.138	0.139	0.141	0.143	0.146	0.148	0.150
.12	.138	.140	.141	.143	.145	.146	.148	.150	.152	.154	.156	.159	.161	.164
.13	.150	.151	.153	.155	.157	.158	.160	.162	.165	.167	.170	.172	.175	.177
.14	.162	.163	.165	.167	.169	.171	.173	.175	.177	.180	.183	.185	.188	.191
.15	.173	.175	.177	.179	.181	.183	.185	.188	.190	.193	.196	.198	.202	.205
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.11	0.153	0.155	0.158	0.161	0.164	0.167	0.171	0.174	0.178	0.182	0.187	0.191	0.196	0.201
.12	.167	.169	.172	.176	.179	.183	.186	.190	.195	.199	.204	.208	.214	.220
.13	.180	.184	.187	.190	.194	.198	.202	.206	.211	.216	.221	.226	.232	.238
.14	.194	.198	.201	.205	.209	.213	.217	.222	.227	.232	.238	.243	.250	.256
.15	.208	.212	.216	.220	.224	.228	.233	.238	.243	.249	.255	.261	.268	.275
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.11	0.207	0.213	0.219	0.226	0.234	0.241	0.250	0.259	0.269	0.280	0.292	0.305	0.320	0.336
.12	.226	.232	.239	.247	.255	.263	.273	.283	.294	.306	.319	.333	.349	.367
.13	.245	.252	.259	.267	.276	.285	.295	.306	.318	.331	.345	.361	.378	.397
.14	.263	.271	.279	.288	.297	.307	.318	.330	.343	.357	.372	.389	.407	.428
.15	.282	.290	.299	.308	.318	.329	.341	.354	.367	.382	.399	.417	.436	.458
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.11	0.354	0.374	0.396	0.422	0.451	0.485	0.524	0.571	0.627	0.695	0.780	0.889	1.034	1.071
.12	.386	.408	.433	.460	.492	.529	.572	.623	.684	.758	0.851	0.970	1.128	1.169
.13	.418	.442	.469	.499	.533	.573	.620	.675	.741	.821	0.922	1.051	1.222	1.266
.14	.451	.476	.505	.537	.574	.617	.668	.727	.798	.885	0.993	1.132	1.316	1.363
.15	.483	.510	.541	.576	.615	.662	.715	.779	.855	.948	1.064	1.212	1.410	1.461
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.11	0.916	0.801	0.711	0.640	0.582	0.534	0.493	0.458	0.428	0.402	0.378	0.358	0.340	0.323
.12	1.000	0.874	.776	.698	.635	.582	.538	.500	.467	.438	.413	.390	.371	.353
.13	1.083	0.947	.841	.757	.688	.631	.582	.541	.506	.475	.447	.423	.402	.382
.14	1.166	1.019	.906	.815	.741	.679	.627	.583	.545	.511	.482	.456	.433	.411
.15	1.250	1.092	.970	.873	.794	.728	.672	.625	.584	.548	.516	.488	.464	.441
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.11	0.308	0.295	0.283	0.271	0.261	0.252	0.243	0.235	0.228	0.221	0.214	0.208	0.202	0.197
.12	.336	.322	.308	.296	.285	.275	.265	.256	.248	.241	.234	.227	.221	.215
.13	.364	.348	.334	.321	.309	.298	.287	.278	.269	.261	.253	.246	.239	.233
.14	.392	.375	.360	.346	.332	.321	.309	.299	.290	.281	.273	.265	.258	.251
.15	.420	.402	.386	.370	.356	.344	.332	.320	.310	.301	.292	.284	.276	.269

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VALUES OF THE COLLIMATION CORRECTION, *Cc*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.16	0.231	0.227	0.223	0.219	0.216	0.212	0.209	0.206	0.203	0.201	0.198	0.196	0.193	0.191
.17	.245	.241	.237	.233	.229	.226	.222	.219	.216	.213	.210	.208	.205	.203
.18	.260	.255	.251	.247	.243	.239	.235	.232	.229	.226	.223	.220	.217	.215
.19	.274	.269	.264	.260	.256	.252	.248	.245	.241	.238	.235	.232	.229	.227
.20	.288	.283	.278	.274	.270	.265	.261	.258	.254	.251	.248	.244	.242	.239
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.16	0.189	0.187	0.185	0.183	0.181	0.180	0.178	0.177	0.175	0.174	0.173	0.172	0.170	0.169
.17	.201	.199	.197	.194	.193	.191	.189	.188	.186	.185	.183	.182	.181	.180
.18	.212	.210	.208	.206	.204	.202	.200	.199	.197	.196	.194	.193	.192	.190
.19	.224	.222	.220	.217	.215	.213	.212	.210	.208	.207	.205	.204	.202	.201
.20	.236	.234	.231	.229	.227	.225	.223	.221	.219	.217	.216	.214	.213	.212
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.16	0.167	0.166	0.164	0.163	0.162	0.161	0.161	0.160	0.160	0.160	0.160	0.161	0.161	0.162
.17	.178	.176	.175	.173	.172	.171	.171	.170	.170	.170	.170	.171	.171	.172
.18	.188	.186	.185	.183	.182	.181	.181	.180	.180	.180	.180	.181	.181	.182
.19	.199	.197	.195	.194	.192	.192	.191	.190	.190	.190	.190	.191	.191	.192
.20	.209	.207	.205	.204	.203	.202	.201	.200	.200	.200	.200	.201	.201	.202
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.16	0.163	0.164	0.166	0.167	0.169	0.171	0.172	0.174	0.175	0.176	0.178	0.179	0.181	0.183
.17	.173	.174	.176	.178	.180	.182	.183	.185	.186	.187	.189	.191	.192	.194
.18	.183	.185	.186	.188	.190	.193	.194	.195	.197	.198	.200	.202	.204	.205
.19	.193	.195	.197	.199	.201	.203	.205	.206	.208	.209	.211	.213	.215	.217
.20	.204	.205	.207	.209	.211	.214	.216	.217	.219	.220	.222	.224	.226	.228
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.16	0.185	0.186	0.188	0.191	0.193	0.195	0.197	0.200	0.203	0.206	0.209	0.212	0.215	0.218
.17	.196	.198	.200	.202	.205	.207	.210	.212	.215	.218	.222	.225	.228	.232
.18	.208	.210	.212	.214	.217	.219	.222	.225	.228	.231	.235	.238	.242	.246
.19	.219	.221	.224	.226	.229	.232	.234	.238	.241	.244	.248	.251	.255	.259
.20	.231	.233	.236	.238	.241	.244	.247	.250	.253	.257	.261	.265	.269	.273
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.16	0.222	0.226	0.230	0.234	0.239	0.243	0.248	0.254	0.259	0.265	0.272	0.278	0.285	0.293
.17	.236	.240	.244	.249	.254	.259	.264	.270	.276	.282	.288	.295	.303	.311
.18	.250	.254	.259	.263	.269	.274	.279	.285	.292	.298	.305	.313	.321	.330
.19	.264	.268	.273	.278	.283	.289	.295	.301	.308	.315	.322	.330	.339	.348
.20	.278	.282	.287	.293	.298	.304	.310	.317	.324	.332	.339	.348	.357	.366
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.16	0.301	0.310	0.319	0.329	0.340	0.351	0.364	0.377	0.392	0.408	0.425	0.444	0.465	0.489
.17	.320	.329	.339	.350	.361	.373	.386	.401	.416	.433	.452	.472	.495	.519
.18	.339	.348	.359	.370	.382	.395	.409	.424	.441	.459	.478	.500	.524	.550
.19	.358	.368	.379	.391	.403	.417	.432	.448	.465	.484	.505	.528	.553	.580
.20	.376	.387	.399	.411	.425	.439	.455	.471	.490	.510	.531	.555	.582	.611
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.16	0.515	0.544	0.577	0.614	0.656	0.706	0.763	0.831	0.912	1.011	1.135	1.293	1.504	1.558
.17	.547	.578	.613	.652	.698	.750	.811	.882	0.969	1.074	1.206	1.374	1.598	1.655
.18	.579	.612	.649	.691	.739	.794	.858	.934	1.026	1.137	1.277	1.455	1.692	1.753
.19	.611	.646	.685	.729	.780	.838	.906	0.986	1.083	1.201	1.347	1.536	1.786	1.850
.20	.644	.680	.721	.767	.821	.882	.954	1.038	1.140	1.264	1.418	1.607	1.880	1.948
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.16	1.333	1.165	1.035	0.931	0.846	0.776	0.717	0.666	0.622	0.584	0.550	0.521	0.494	0.470
.17	1.416	1.238	1.100	0.989	0.899	.825	.762	.708	.661	.621	.585	.553	.525	.499
.18	1.500	1.311	1.164	1.048	0.952	.873	.806	.750	.700	.657	.619	.586	.556	.529
.19	1.583	1.383	1.229	1.106	1.005	.922	.851	.791	.739	.694	.654	.618	.587	.558
.20	1.666	1.456	1.294	1.164	1.058	.970	.896	.833	.778	.730	.688	.651	.617	.588
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.16	0.448	0.429	0.411	0.395	0.380	0.366	0.354	0.342	0.331	0.321	0.312	0.303	0.294	0.287
.17	.477	.456	.437	.420	.404	.389	.376	.363	.352	.341	.331	.322	.313	.305
.18	.505	.482	.463	.444	.428	.412	.398	.385	.372	.361	.350	.341	.331	.323
.19	.533	.509	.488	.469	.451	.435	.420	.406	.393	.381	.370	.359	.350	.341
.20	.561	.536	.514	.494	.475	.458	.442	.427	.414	.401	.389	.378	.368	.359

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VALUES OF THE COLLIMATION CORRECTION, *Cc*.

Constant.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign.

	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.21	0.303	0.298	0.292	0.288	0.283	0.279	0.274	0.271	0.267	0.263	0.260	0.257	0.254	0.251
.22	.317	.312	.306	.301	.297	.292	.288	.284	.280	.276	.272	.269	.266	.263
.23	.332	.326	.320	.315	.310	.305	.301	.296	.292	.288	.285	.281	.278	.275
.24	.346	.340	.334	.329	.323	.318	.314	.309	.305	.301	.297	.293	.290	.287
.25	.360	.354	.348	.342	.337	.332	.327	.322	.318	.314	.310	.306	.302	.298
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.21	0.248	0.245	0.243	0.240	0.238	0.236	0.234	0.232	0.230	0.228	0.227	0.225	0.224	0.222
.22	.260	.257	.254	.252	.249	.247	.245	.243	.241	.239	.237	.236	.234	.233
.23	.271	.269	.266	.263	.261	.258	.256	.254	.252	.250	.248	.247	.245	.243
.24	.283	.280	.277	.275	.272	.270	.267	.265	.263	.261	.259	.258	.256	.254
.25	.295	.292	.289	.286	.283	.281	.278	.276	.274	.272	.270	.268	.266	.264
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.21	0.220	0.218	0.216	0.214	0.213	0.212	0.211	0.210	0.210	0.210	0.210	0.211	0.211	0.213
.22	.230	.228	.226	.224	.223	.222	.221	.220	.220	.220	.220	.221	.222	.223
.23	.241	.238	.236	.234	.233	.232	.231	.230	.230	.230	.230	.231	.232	.233
.24	.251	.249	.246	.245	.243	.242	.241	.240	.240	.240	.240	.241	.242	.243
.25	.261	.259	.257	.255	.253	.252	.251	.250	.250	.250	.250	.251	.252	.253
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.21	0.214	0.215	0.217	0.219	0.222	0.225	0.226	0.228	0.230	0.231	0.234	0.235	0.238	0.240
.22	.224	.226	.228	.230	.233	.235	.237	.239	.241	.242	.245	.247	.249	.251
.23	.234	.236	.238	.240	.243	.246	.248	.250	.252	.253	.256	.258	.260	.263
.24	.244	.246	.248	.251	.254	.257	.259	.261	.263	.264	.267	.269	.272	.274
.25	.254	.256	.259	.261	.264	.268	.270	.271	.274	.275	.278	.280	.283	.285
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.21	0.242	0.245	0.247	0.250	0.253	0.256	0.259	0.262	0.266	0.270	0.274	0.278	0.282	0.287
.22	.254	.256	.259	.262	.265	.268	.271	.275	.279	.283	.287	.291	.296	.300
.23	.265	.268	.271	.274	.277	.280	.284	.288	.291	.296	.300	.304	.309	.314
.24	.277	.280	.283	.286	.289	.293	.296	.300	.304	.308	.313	.318	.323	.328
.25	.288	.291	.294	.298	.301	.305	.308	.312	.317	.321	.326	.331	.336	.341
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.21	0.291	0.297	0.302	0.307	0.313	0.319	0.326	0.333	0.340	0.348	0.356	0.365	0.375	0.385
.22	.305	.311	.316	.322	.328	.335	.341	.349	.357	.365	.373	.383	.392	.403
.23	.319	.325	.330	.337	.343	.350	.357	.365	.373	.381	.390	.400	.410	.421
.24	.333	.339	.345	.351	.358	.365	.372	.381	.389	.398	.407	.417	.428	.439
.25	.347	.353	.359	.366	.373	.380	.388	.396	.405	.414	.424	.435	.446	.458
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.21	0.395	0.407	0.419	0.431	0.446	0.461	0.477	0.495	0.524	0.535	0.558	0.583	0.611	0.642
.22	.414	.426	.439	.452	.467	.483	.500	.519	.549	.561	.585	.611	.640	.672
.23	.433	.445	.459	.473	.488	.505	.523	.542	.573	.586	.611	.639	.669	.703
.24	.452	.465	.479	.493	.510	.527	.546	.566	.598	.612	.638	.666	.698	.733
.25	.470	.484	.499	.514	.531	.549	.568	.589	.622	.637	.664	.694	.727	.764
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.21	0.676	0.714	0.757	0.806	0.862	0.926	1.001	1.090	1.197	1.327	1.489	1.697	1.974	2.045
.22	.708	.748	.793	.844	0.903	0.970	1.049	1.142	1.254	1.390	1.560	1.778	2.068	2.142
.23	.740	.782	.829	.882	0.944	1.014	1.097	1.194	1.311	1.453	1.631	1.859	2.162	2.240
.24	.772	.816	.865	.921	0.985	1.058	1.144	1.246	1.368	1.517	1.702	1.940	2.256	2.337
.25	.804	.850	.901	.959	1.026	1.102	1.192	1.298	1.425	1.580	1.773	2.021	2.350	2.434
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.21	1.750	1.539	1.358	1.222	1.111	1.019	0.941	0.874	0.817	0.767	0.722	0.683	0.648	0.617
.22	1.833	1.612	1.423	1.280	1.164	1.067	0.986	0.916	.856	.803	.757	.716	.679	.646
.23	1.916	1.685	1.488	1.339	1.217	1.116	1.030	0.958	.895	.840	.791	.748	.710	.676
.24	1.999	1.757	1.552	1.397	1.270	1.164	1.075	0.999	.934	.876	.826	.781	.741	.705
.25	2.083	1.840	1.617	1.457	1.322	1.213	1.120	1.041	.972	.913	.860	.814	.772	.734
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.21	0.589	0.563	0.540	0.518	0.499	0.481	0.464	0.449	0.434	0.421	0.409	0.397	0.386	0.377
.22	.617	.590	.565	.543	.522	.504	.486	.470	.455	.441	.428	.416	.405	.394
.23	.645	.616	.591	.568	.546	.527	.508	.492	.476	.461	.448	.435	.423	.412
.24	.673	.643	.617	.592	.570	.550	.530	.513	.497	.481	.467	.454	.442	.430
.25	.701	.670	.642	.617	.594	.572	.552	.534	.517	.501	.487	.473	.460	.448

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VALUES OF THE COLLIMATION CORRECTION, *Cc*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.26	0.375	0.368	0.362	0.356	0.350	0.345	0.340	0.335	0.330	0.326	0.322	0.318	0.314	0.310
.27	.389	.383	.376	.370	.364	.358	.353	.348	.343	.339	.334	.330	.326	.323
.28	.404	.397	.390	.384	.377	.372	.366	.361	.356	.351	.347	.342	.338	.334
.29	.418	.411	.404	.397	.391	.385	.379	.374	.369	.364	.359	.354	.350	.346
.30	.433	.425	.418	.411	.404	.398	.392	.387	.381	.376	.371	.367	.362	.358
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.26	0.307	0.304	0.301	.297	0.294	0.292	0.289	0.287	0.285	0.283	0.280	0.279	0.277	0.275
.27	.319	.315	.312	.309	.306	.303	.301	.298	.296	.293	.291	.289	.288	.286
.28	.330	.327	.324	.320	.318	.314	.312	.309	.307	.304	.302	.300	.298	.296
.29	.342	.339	.335	.332	.329	.326	.323	.320	.318	.315	.313	.311	.309	.307
.30	.354	.350	.347	.343	.340	.337	.334	.331	.329	.326	.324	.322	.320	.317
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.26	0.272	0.269	0.267	0.265	0.264	0.262	0.261	0.261	0.260	0.260	0.260	0.261	0.262	0.263
.27	.282	.280	.277	.275	.274	.272	.271	.271	.270	.270	.270	.271	.272	.273
.28	.293	.290	.288	.285	.284	.282	.281	.281	.280	.280	.280	.281	.282	.283
.29	.303	.300	.298	.296	.294	.292	.291	.291	.290	.290	.290	.291	.292	.293
.30	.314	.311	.308	.306	.304	.302	.301	.301	.300	.300	.300	.301	.302	.304
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.26	0.265	0.267	0.269	0.272	0.275	0.278	0.280	0.282	0.284	0.287	0.289	0.291	0.294	0.297
.27	.275	.277	.279	.282	.285	.289	.291	.293	.295	.298	.300	.303	.306	.308
.28	.285	.287	.290	.293	.296	.300	.302	.304	.306	.309	.311	.314	.317	.320
.29	.295	.298	.300	.303	.306	.310	.313	.315	.317	.320	.322	.325	.328	.331
.30	.305	.308	.310	.314	.317	.321	.323	.326	.328	.331	.334	.336	.340	.343
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.26	0.300	0.303	0.306	0.310	0.313	0.317	0.321	0.325	0.329	0.334	0.339	0.344	0.349	0.355
.27	.312	.315	.318	.322	.325	.329	.333	.338	.342	.347	.352	.357	.363	.369
.28	.323	.326	.330	.333	.337	.341	.346	.350	.355	.360	.365	.370	.376	.382
.29	.335	.338	.342	.345	.349	.354	.358	.362	.367	.373	.378	.384	.390	.396
.30	.346	.350	.353	.357	.361	.366	.370	.375	.380	.386	.391	.397	.403	.410
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.26	0.361	0.367	0.374	0.381	0.388	0.395	0.404	0.412	0.421	0.431	0.441	0.452	0.464	0.476
.27	.375	.381	.388	.395	.403	.411	.419	.428	.438	.448	.458	.470	.482	.494
.28	.389	.395	.402	.410	.418	.426	.435	.444	.454	.464	.475	.487	.500	.513
.29	.403	.409	.417	.425	.433	.441	.450	.460	.470	.481	.492	.504	.517	.531
.30	.416	.424	.431	.439	.448	.456	.466	.476	.486	.497	.509	.522	.535	.549
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.26	0.489	0.503	0.518	0.535	0.552	0.571	0.591	0.613	0.646	0.662	0.691	0.722	0.756	0.794
.27	.508	.523	.538	.555	.573	.593	.614	.636	.671	.688	.717	.750	.785	.825
.28	.527	.542	.558	.576	.594	.615	.636	.660	.695	.713	.744	.778	.815	.855
.29	.546	.561	.578	.596	.616	.637	.659	.684	.720	.739	.771	.805	.844	.886
.30	.565	.581	.598	.617	.637	.658	.682	.707	.744	.764	.797	.833	.873	.916
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.26	0.837	0.884	0.937	0.998	1.067	1.147	1.240	1.350	1.482	1.643	1.844	2.102	2.444	2.532
.27	.869	0.918	0.973	1.036	1.108	1.191	1.287	1.402	1.539	1.706	1.915	2.182	2.538	2.629
.28	.901	0.952	1.009	1.074	1.149	1.235	1.335	1.453	1.596	1.769	1.986	2.263	2.632	2.727
.29	.933	0.986	1.045	1.113	1.190	1.279	1.383	1.505	1.653	1.833	2.057	2.344	2.726	2.824
.30	.965	1.020	1.082	1.151	1.231	1.323	1.430	1.557	1.710	1.896	2.128	2.425	2.820	2.921
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.26	2.166	1.913	1.682	1.513	1.375	1.262	1.165	1.083	1.011	0.950	0.894	0.846	0.803	0.764
.27	2.249	1.986	1.746	1.571	1.428	1.310	1.210	1.124	1.050	0.986	0.929	.879	.833	.793
.28	2.333	2.059	1.811	1.630	1.481	1.359	1.254	1.166	1.089	1.023	0.963	.911	.864	.823
.29	2.416	2.131	1.876	1.688	1.534	1.407	1.299	1.208	1.128	1.059	0.998	.944	.895	.852
.30	2.499	2.204	1.940	1.746	1.587	1.456	1.344	1.249	1.167	1.096	1.032	.976	.926	.881
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.26	0.739	0.697	0.668	0.642	0.618	0.595	0.575	0.556	0.538	0.522	0.506	0.492	0.478	0.466
.27	.757	.724	.694	.666	.641	.618	.597	.577	.559	.542	.526	.511	.497	.484
.28	.785	.750	.720	.691	.665	.641	.619	.598	.579	.562	.545	.530	.515	.502
.29	.813	.777	.745	.716	.689	.664	.641	.620	.600	.582	.565	.549	.534	.520
.30	.841	.804	.771	.740	.712	.687	.663	.641	.621	.602	.584	.568	.552	.538

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VALUES OF THE COLLIMATION CORRECTION, *Cc.*

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.31	0.447	0.439	0.432	0.425	0.417	0.411	0.405	0.400	0.394	0.389	0.384	0.379	0.374	0.370
.32	.461	.453	.445	.438	.431	.425	.418	.412	.407	.401	.396	.391	.387	.382
.33	.476	.468	.459	.452	.445	.438	.431	.425	.419	.414	.409	.403	.399	.394
.34	.490	.482	.473	.466	.458	.451	.444	.438	.432	.426	.421	.415	.411	.406
.35	.505	.496	.487	.480	.472	.464	.457	.451	.445	.439	.433	.428	.423	.418
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.31	0.366	0.362	0.358	0.355	0.352	0.348	0.345	0.342	0.339	0.337	0.334	0.332	0.330	0.328
.32	.378	.374	.370	.366	.363	.359	.356	.353	.350	.348	.345	.343	.341	.339
.33	.389	.385	.381	.378	.374	.371	.368	.364	.361	.359	.356	.354	.351	.349
.34	.401	.397	.393	.389	.386	.382	.379	.375	.372	.370	.367	.364	.362	.360
.35	.413	.409	.405	.400	.397	.393	.390	.386	.383	.380	.378	.375	.373	.370
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.31	0.324	0.321	0.318	0.316	0.314	0.312	0.311	0.311	0.310	0.310	0.310	0.311	0.312	0.314
.32	.335	.332	.329	.326	.324	.323	.321	.321	.320	.320	.320	.321	.322	.324
.33	.345	.342	.339	.336	.334	.333	.331	.331	.330	.330	.330	.331	.332	.334
.34	.356	.352	.349	.346	.344	.343	.341	.341	.340	.340	.340	.341	.342	.344
.35	.366	.363	.359	.357	.355	.353	.351	.351	.350	.350	.350	.351	.352	.354
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.31	0.316	0.318	0.321	0.324	0.328	0.332	0.334	0.337	0.339	0.342	0.345	0.348	0.351	0.354
.32	.326	.328	.331	.334	.338	.342	.345	.348	.350	.353	.356	.359	.362	.365
.33	.336	.339	.342	.345	.349	.353	.356	.358	.361	.364	.367	.370	.374	.377
.34	.346	.349	.352	.355	.359	.364	.367	.369	.372	.375	.378	.381	.385	.388
.35	.356	.359	.362	.366	.370	.374	.377	.380	.383	.386	.389	.392	.396	.400
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.31	0.358	0.361	0.365	0.369	0.374	0.378	0.383	0.388	0.393	0.398	0.404	0.410	0.417	0.423
.32	.370	.373	.377	.381	.386	.390	.395	.400	.405	.411	.417	.423	.430	.437
.33	.381	.384	.389	.393	.398	.402	.407	.412	.418	.424	.430	.437	.444	.450
.34	.392	.396	.401	.405	.410	.414	.420	.425	.431	.437	.443	.450	.457	.464
.35	.404	.408	.412	.417	.422	.427	.432	.438	.443	.450	.456	.463	.470	.478
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.31	0.430	0.438	0.445	0.454	0.463	0.472	0.481	0.492	0.503	0.514	0.526	0.539	0.553	0.568
.32	.444	.452	.460	.468	.477	.487	.497	.508	.519	.531	.543	.556	.571	.586
.33	.458	.466	.474	.483	.492	.502	.512	.523	.535	.547	.560	.574	.589	.604
.34	.472	.480	.489	.498	.507	.517	.528	.539	.551	.564	.577	.591	.607	.623
.35	.486	.494	.503	.512	.522	.532	.543	.555	.567	.580	.594	.609	.624	.641
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.31	0.583	0.600	0.618	0.637	0.658	0.680	0.705	0.731	0.759	0.790	0.824	0.861	0.902	0.947
.32	.602	.620	.638	.658	.679	.702	.728	.754	.783	.815	.850	.889	0.931	0.978
.33	.621	.639	.658	.678	.701	.724	.750	.778	.808	.841	.877	.916	0.960	1.008
.34	.640	.658	.678	.699	.722	.746	.773	.801	.832	.866	.903	.944	0.989	1.039
.35	.659	.678	.698	.719	.743	.768	.796	.825	.857	.892	.930	.972	1.018	1.069
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.31	0.998	1.054	1.118	1.189	1.272	1.367	1.478	1.609	1.769	1.959	2.198	2.506	2.914	3.019
.32	1.030	1.088	1.154	1.228	1.313	1.411	1.526	1.661	1.824	2.022	2.269	2.587	3.008	3.116
.33	1.062	1.122	1.190	1.266	1.354	1.455	1.573	1.713	1.881	2.085	2.340	2.667	3.102	3.214
.34	1.094	1.156	1.226	1.305	1.395	1.499	1.621	1.765	1.938	2.148	2.411	2.748	3.196	3.311
.35	1.126	1.190	1.262	1.343	1.436	1.544	1.669	1.817	1.995	2.212	2.482	2.829	3.290	3.408
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.31	2.583	2.257	2.005	1.804	1.640	1.504	1.389	1.291	1.206	1.132	1.067	1.008	0.957	0.911
.32	2.666	2.330	2.070	1.862	1.693	1.553	1.434	1.332	1.245	1.169	1.101	1.041	0.988	0.940
.33	2.749	2.403	2.134	1.921	1.746	1.601	1.479	1.374	1.284	1.205	1.135	1.074	1.019	0.970
.34	2.833	2.475	2.199	1.979	1.799	1.650	1.524	1.416	1.323	1.242	1.170	1.106	1.050	0.999
.35	2.916	2.548	2.264	2.037	1.852	1.698	1.568	1.457	1.362	1.278	1.204	1.139	1.080	1.028
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.31	0.869	0.831	0.797	0.765	0.736	0.710	0.689	0.662	0.641	0.622	0.604	0.587	0.571	0.556
.32	.897	.858	.822	.790	.760	.733	.707	.684	.662	.642	.623	.605	.589	.574
.33	.925	.885	.848	.814	.784	.756	.729	.705	.683	.662	.643	.624	.608	.592
.34	.953	.912	.874	.839	.808	.779	.751	.727	.703	.682	.662	.643	.626	.610
.35	.981	.938	.900	.864	.831	.802	.774	.748	.724	.702	.681	.662	.644	.628

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VALUES OF THE COLLIMATION CORRECTION, *Cc.*

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.36	0.519	0.510	0.501	0.493	0.485	0.478	0.471	0.464	0.458	0.451	0.446	0.440	0.435	0.430
.37	.534	.524	.515	.507	.499	.491	.484	.477	.470	.464	.458	.452	.447	.442
.38	.548	.538	.529	.521	.512	.504	.497	.490	.483	.477	.470	.464	.459	.454
.39	.562	.553	.543	.534	.526	.518	.510	.503	.496	.489	.483	.477	.471	.466
.40	.577	.567	.557	.548	.539	.531	.523	.516	.508	.502	.495	.489	.483	.478
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.36	0.425	0.420	0.416	0.412	0.408	0.404	0.401	0.397	0.394	0.391	0.388	0.386	0.383	0.381
.37	.437	.432	.428	.423	.420	.416	.412	.408	.405	.402	.399	.397	.394	.391
.38	.448	.444	.439	.435	.431	.427	.423	.420	.416	.413	.410	.407	.405	.402
.39	.460	.456	.451	.446	.442	.438	.434	.431	.427	.424	.421	.418	.415	.413
.40	.472	.467	.462	.458	.454	.449	.446	.442	.438	.435	.432	.429	.426	.423
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.36	0.377	0.373	0.370	0.367	0.365	0.363	0.361	0.361	0.360	0.360	0.360	0.361	0.363	0.364
.37	.387	.383	.380	.377	.375	.373	.371	.371	.370	.370	.370	.371	.373	.374
.38	.397	.394	.390	.387	.385	.383	.382	.381	.380	.380	.380	.382	.383	.385
.39	.408	.404	.401	.397	.395	.393	.392	.391	.390	.390	.390	.392	.393	.395
.40	.418	.414	.411	.408	.405	.403	.402	.401	.400	.400	.400	.402	.403	.405
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.36	0.366	0.369	0.373	0.376	0.381	0.385	0.388	0.391	0.394	0.397	0.400	0.404	0.408	0.411
.37	.377	.380	.383	.387	.391	.396	.399	.402	.405	.408	.411	.415	.419	.423
.38	.387	.390	.393	.397	.402	.407	.410	.413	.416	.419	.423	.426	.430	.434
.39	.397	.400	.404	.408	.412	.417	.420	.424	.427	.430	.434	.437	.441	.445
.40	.407	.410	.414	.418	.423	.428	.431	.434	.438	.441	.445	.448	.453	.457
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.36	0.415	0.419	0.424	0.429	0.434	0.439	0.444	0.450	0.456	0.463	0.469	0.476	0.484	0.491
.37	.427	.431	.436	.441	.446	.451	.457	.462	.469	.475	.482	.490	.497	.505
.38	.439	.443	.448	.453	.458	.463	.469	.475	.481	.488	.496	.503	.511	.519
.39	.450	.454	.459	.464	.470	.475	.481	.488	.494	.501	.509	.516	.524	.532
.40	.462	.466	.471	.476	.482	.488	.494	.500	.507	.514	.522	.529	.538	.546
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.36	0.500	0.508	0.517	0.527	0.537	0.548	0.559	0.571	0.584	0.597	0.611	0.626	0.642	0.659
.37	.514	.522	.532	.542	.552	.563	.574	.587	.600	.613	.628	.643	.660	.677
.38	.527	.537	.546	.556	.567	.578	.590	.603	.616	.630	.645	.661	.678	.696
.39	.541	.551	.560	.571	.582	.593	.605	.619	.632	.647	.662	.678	.696	.714
.40	.555	.565	.575	.586	.597	.608	.621	.634	.648	.663	.679	.696	.714	.732
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.36	0.678	0.697	0.718	0.740	0.764	0.790	0.818	0.849	0.881	0.917	0.957	1.000	1.047	1.100
.37	.696	.716	.738	.760	.786	.812	.841	.872	.906	0.943	0.983	1.027	1.076	1.130
.38	.715	.736	.758	.781	.807	.834	.864	.896	.930	0.968	1.010	1.055	1.105	1.161
.39	.734	.755	.778	.801	.828	.856	.886	.919	.955	0.994	1.036	1.083	1.135	1.191
.40	.753	.774	.798	.822	.849	.878	.909	.943	.979	1.019	1.063	1.111	1.164	1.222
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.36	1.158	1.224	1.298	1.381	1.477	1.588	1.716	1.869	2.052	2.275	2.553	2.910	3.384	3.506
.37	1.191	1.258	1.334	1.420	1.518	1.632	1.764	1.921	2.109	2.338	2.624	2.991	3.478	3.603
.38	1.223	1.292	1.370	1.458	1.559	1.676	1.812	1.973	2.166	2.401	2.695	3.072	3.572	3.700
.39	1.255	1.326	1.406	1.496	1.600	1.720	1.860	2.024	2.223	2.464	2.766	3.152	3.666	3.798
.40	1.287	1.360	1.442	1.535	1.641	1.764	1.907	2.076	2.280	2.528	2.837	3.233	3.760	3.895
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.36	2.999	2.621	2.328	2.095	1.905	1.747	1.613	1.499	1.401	1.315	1.239	1.171	1.111	1.058
.37	3.082	2.694	2.393	2.153	1.958	1.795	1.658	1.541	1.440	1.351	1.273	1.204	1.142	1.087
.38	3.166	2.767	2.458	2.212	2.011	1.844	1.703	1.582	1.479	1.388	1.308	1.236	1.173	1.116
.39	3.249	2.840	2.523	2.270	2.063	1.892	1.748	1.624	1.517	1.424	1.342	1.269	1.204	1.146
.40	3.332	2.912	2.587	2.328	2.116	1.941	1.792	1.666	1.556	1.461	1.376	1.302	1.235	1.175
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.36	1.009	0.965	0.925	0.888	0.855	0.824	0.796	0.769	0.745	0.722	0.701	0.681	0.663	0.645
.37	1.037	0.992	0.951	.913	.879	.847	.818	.791	.765	.742	.720	.700	.681	.663
.38	1.065	1.019	0.977	.938	.903	.870	.840	.812	.786	.762	.740	.719	.699	.681
.39	1.093	1.046	1.002	.963	.926	.893	.862	.833	.807	.782	.759	.738	.718	.699
.40	1.121	1.072	1.028	.987	.950	.916	.884	.855	.828	.802	.779	.757	.736	.717

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Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.41	0.591	0.581	0.571	0.562	0.553	0.544	0.536	0.528	0.521	0.514	0.508	0.501	0.495	0.490
.42	.606	.595	.585	.575	.566	.557	.549	.541	.534	.527	.520	.513	.507	.501
.43	.620	.609	.599	.589	.580	.571	.562	.554	.547	.539	.532	.525	.519	.513
.44	.634	.623	.612	.603	.593	.584	.575	.567	.559	.552	.545	.538	.532	.525
.45	.649	.638	.626	.617	.607	.597	.588	.580	.572	.564	.557	.550	.544	.537
	71°	**70°**	**69°**	**68°**	**67°**	**66°**	**65°**	**64°**	**63°**	**62°**	**61°**	**60°**	**59°**	**58°**
0.41	0.484	0.479	0.474	0.469	0.465	0.460	0.457	0.453	0.449	0.446	0.442	0.440	0.437	0.434
.42	.496	.491	.486	.480	.476	.472	.468	.464	.460	.457	.453	.450	.447	.444
.43	.507	.502	.499	.492	.488	.483	.479	.475	.471	.467	.464	.461	.458	.455
.44	.519	.514	.509	.503	.499	.494	.490	.486	.482	.478	.475	.472	.469	.466
.45	.531	.526	.520	.515	.510	.505	.501	.497	.493	.489	.486	.482	.479	.476
	56°	**54°**	**52°**	**50°**	**48°**	**46°**	**44°**	**42°**	**40°**	**38°**	**36°**	**34°**	**32°**	**30°**
0.41	0.429	0.425	0.421	0.418	0.415	0.413	0.412	0.411	0.410	0.410	0.410	0.412	0.413	0.415
.42	.439	.435	.431	.428	.425	.423	.422	.421	.420	.420	.420	.422	.423	.425
.43	.450	.445	.441	.438	.436	.433	.432	.431	.430	.430	.430	.432	.433	.435
.44	.460	.456	.452	.448	.446	.444	.442	.441	.440	.440	.440	.442	.443	.445
.45	.471	.466	.462	.459	.456	.454	.452	.451	.450	.450	.450	.452	.453	.455
	28°	**26°**	**24°**	**22°**	**20°**	**18°**	**17°**	**16°**	**15°**	**14°**	**13°**	**12°**	**11°**	**10°**
0.41	0.417	0.421	0.424	0.428	0.433	0.439	0.442	0.445	0.449	0.452	0.456	0.460	0.464	0.468
.42	.428	.431	.435	.439	.444	.449	.453	.456	.459	.463	.467	.471	.475	.480
.43	.438	.441	.445	.449	.455	.460	.464	.467	.470	.474	.478	.482	.487	.491
.44	.448	.451	.455	.460	.465	.471	.474	.478	.481	.485	.489	.493	.498	.502
.45	.458	.462	.466	.470	.476	.482	.485	.489	.492	.496	.500	.504	.509	.514
	9°	**8°**	**7°**	**6°**	**5°**	**4°**	**3°**	**2°**	**1°**	**0°**	**359°**	**358°**	**357°**	**356°**
0.41	0.473	0.478	0.483	0.488	0.494	0.500	0.506	0.512	0.519	0.527	0.535	0.542	0.551	0.560
.42	.485	.489	.495	.500	.506	.512	.518	.525	.532	.540	.548	.556	.564	.573
.43	.496	.501	.507	.512	.518	.524	.531	.538	.545	.553	.561	.569	.578	.587
.44	.508	.513	.518	.524	.530	.536	.543	.550	.557	.565	.574	.582	.591	.601
.45	.519	.524	.530	.536	.542	.549	.555	.562	.570	.578	.587	.595	.605	.614
	355°	**354°**	**353°**	**352°**	**351°**	**350°**	**349°**	**348°**	**347°**	**346°**	**345°**	**344°**	**343°**	**342°**
0.41	0.569	0.579	0.589	0.600	0.612	0.624	0.636	0.650	0.665	0.680	0.696	0.713	0.731	0.751
.42	.583	.593	.604	.615	.627	.639	.652	.666	.681	.696	.713	.730	.749	.769
.43	.597	.607	.618	.630	.642	.654	.667	.682	.697	.713	.730	.748	.767	.787
.44	.611	.621	.632	.644	.656	.669	.683	.698	.713	.730	.747	.765	.785	.806
.45	.625	.635	.647	.659	.671	.684	.698	.714	.729	.746	.764	.783	.803	.824
	341°	**340°**	**339°**	**338°**	**337°**	**336°**	**335°**	**334°**	**333°**	**332°**	**331°**	**330°**	**329°**	**328°**
0.41	0.772	0.794	0.818	0.843	0.870	0.900	0.932	0.966	1.004	1.045	1.089	1.139	1.193	1.253
.42	.790	.813	.837	.863	.892	.922	0.955	0.990	1.028	1.070	1.116	1.166	1.222	1.283
.43	.809	.832	.857	.884	.913	.944	0.977	1.014	1.053	1.096	1.143	1.194	1.251	1.314
.44	.828	.852	.877	.904	.934	.966	1.000	1.037	1.077	1.121	1.169	1.222	1.280	1.344
.45	.847	.871	.897	.925	.955	.988	1.023	1.061	1.102	1.147	1.196	1.250	1.309	1.375
	327°	**326°**	**325°**	**324°**	**323°**	**322°**	**321°**	**320°**	**319°**	**318°**	**317°**	**316°**	**315°**	**303°**
0.41	1.319	1.394	1.478	1.573	1.682	1.808	1.955	2.128	2.337	2.591	2.908	3.314	3.854	3.993
.42	1.352	1.428	1.514	1.612	1.723	1.852	2.003	2.180	2.394	2.654	2.979	3.395	3.948	4.090
.43	1.384	1.462	1.550	1.650	1.764	1.896	2.050	2.232	2.451	2.717	3.050	3.476	4.042	4.187
.44	1.416	1.496	1.586	1.688	1.805	1.940	2.098	2.284	2.508	2.780	3.120	3.557	4.136	4.285
.45	1.448	1.530	1.622	1.727	1.846	1.984	2.146	2.336	2.565	2.844	3.191	3.637	4.230	4.382
	302°	**301°**	**300°**	**299°**	**298°**	**297°**	**296°**	**295°**	**294°**	**293°**	**292°**	**291°**	**290°**	**289°**
0.41	3.416	2.985	2.652	2.386	2.169	1.989	1.837	1.707	1.560	1.497	1.411	1.334	1.266	1.205
.42	3.499	3.058	2.717	2.444	2.222	2.038	1.882	1.749	1.634	1.534	1.445	1.367	1.297	1.234
.43	3.582	3.131	2.781	2.503	2.275	2.086	1.927	1.791	1.673	1.570	1.480	1.399	1.327	1.263
.44	3.666	3.204	2.846	2.561	2.328	2.135	1.972	1.832	1.712	1.607	1.514	1.432	1.358	1.293
.45	3.749	3.276	2.911	2.619	2.381	2.183	2.016	1.874	1.751	1.643	1.548	1.464	1.389	1.322
	288°	**287°**	**286°**	**285°**	**284°**	**283°**	**282°**	**281°**	**280°**	**279°**	**278°**	**277°**	**276°**	**275°**
0.41	1.149	1.099	1.054	1.012	0.974	0.939	0.906	0.876	0.848	0.822	0.798	0.776	0.755	0.735
.42	1.177	1.126	1.079	1.037	0.998	0.962	.928	.898	.869	.843	.818	.795	.773	.753
.43	1.205	1.153	1.105	1.061	1.021	0.985	.950	.919	.890	.863	.837	.814	.792	.771
.44	1.233	1.180	1.131	1.086	1.045	1.008	.972	.940	.910	.883	.857	.832	.810	.789
.45	1.261	1.206	1.157	1.111	1.069	1.030	.994	.962	.931	.903	.876	.851	.828	.807

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VALUES OF THE COLLIMATION CORRECTION, *Cc*.

Argument: Zenith Distance South.

Between 315° and 85° the Correction has the same sign as the Constant; between 275° and 303° it has the opposite sign.

Constant.	85°	84°	83°	82°	81°	80°	79°	78°	77°	76°	75°	74°	73°	72°
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
0.46	0.663	0.652	0.640	0.630	0.620	0.610	0.601	0.593	0.585	0.577	0.569	0.562	0.556	0.549
.47	.678	.666	.654	.644	.634	.624	.614	.606	.597	.589	.582	.574	.568	.561
.48	.692	.680	.668	.658	.647	.637	.627	.619	.610	.602	.594	.587	.580	.573
.49	.707	.694	.682	.671	.661	.650	.640	.632	.622	.614	.607	.599	.592	.585
.50	.721	.708	.696	.685	.674	.664	.654	.644	.635	.627	.619	.611	.604	.597
	71°	70°	69°	68°	67°	66°	65°	64°	63°	62°	61°	60°	59°	58°
0.46	0.543	0.537	0.532	0.526	0.522	0.517	0.512	0.508	0.504	0.500	0.496	0.493	0.490	0.487
.47	.555	.549	.543	.538	.533	.528	.524	.519	.515	.511	.507	.504	.501	.497
.48	.566	.561	.555	.549	.544	.539	.535	.530	.526	.522	.518	.515	.511	.508
.49	.578	.572	.566	.561	.556	.550	.546	.541	.537	.533	.529	.525	.522	.518
.50	.590	.584	.578	.572	.567	.562	.557	.552	.548	.544	.540	.536	.532	.529
	56°	54°	52°	50°	48°	46°	44°	42°	40°	38°	36°	34°	32°	30°
0.46	0.481	0.477	0.472	0.469	0.466	0.464	0.462	0.461	0.460	0.460	0.460	0.462	0.463	0.466
.47	.492	.487	.483	.479	.476	.474	.472	.471	.470	.470	.470	.472	.473	.476
.48	.502	.497	.493	.489	.486	.484	.482	.481	.480	.480	.480	.482	.483	.486
.49	.513	.508	.503	.499	.496	.494	.492	.491	.490	.490	.490	.492	.493	.496
.50	.523	.518	.514	.510	.506	.504	.502	.501	.500	.500	.500	.502	.504	.506
	28°	26°	24°	22°	20°	18°	17°	16°	15°	14°	13°	12°	11°	10°
0.46	0.468	0.472	0.476	0.481	0.486	0.492	0.496	0.500	0.503	0.507	0.512	0.516	0.521	0.525
.47	.478	.482	.486	.491	.497	.503	.507	.510	.514	.518	.523	.527	.532	.537
.48	.489	.492	.497	.502	.507	.514	.517	.521	.525	.529	.534	.538	.543	.548
.49	.499	.503	.507	.512	.518	.524	.528	.532	.536	.540	.545	.549	.555	.560
.50	.509	.513	.518	.522	.528	.535	.539	.543	.547	.551	.556	.560	.566	.571
	9°	8°	7°	6°	5°	4°	3°	2°	1°	0°	359°	358°	357°	356°
0.46	0.531	0.536	0.542	0.548	0.554	0.561	0.568	0.575	0.583	0.591	0.600	0.609	0.618	0.628
.47	.542	.548	.554	.560	.566	.573	.580	.588	.595	.604	.613	.622	.632	.642
.48	.554	.559	.565	.572	.578	.585	.592	.600	.608	.617	.626	.635	.645	.655
.49	.565	.571	.577	.584	.590	.597	.605	.612	.621	.630	.639	.648	.659	.669
.50	.577	.583	.589	.596	.603	.610	.617	.625	.633	.642	.652	.662	.672	.683
	355°	354°	353°	352°	351°	350°	349°	348°	347°	346°	345°	344°	343°	342°
0.46	0.638	0.650	0.661	0.673	0.686	0.700	0.714	0.730	0.746	0.763	0.781	0.800	0.821	0.842
.47	.652	.664	.675	.688	.701	.715	.729	.745	.762	.779	.798	.817	.838	.861
.48	.666	.678	.690	.703	.716	.730	.745	.761	.778	.796	.815	.835	.856	.879
.49	.680	.692	.704	.717	.731	.745	.760	.777	.794	.812	.832	.852	.874	.897
.50	.694	.706	.718	.732	.746	.760	.776	.793	.810	.829	.849	.870	.892	.916
	341°	340°	339°	338°	337°	336°	335°	334°	333°	332°	331°	330°	329°	328°
0.46	0.866	0.891	0.917	0.945	0.977	1.010	1.046	1.084	1.126	1.172	1.222	1.277	1.338	1.405
.47	.885	.910	.937	0.966	0.998	1.032	1.068	1.108	1.151	1.198	1.249	1.305	1.367	1.436
.48	.903	.929	.957	0.986	1.019	1.054	1.091	1.131	1.175	1.223	1.275	1.333	1.396	1.466
.49	.922	.949	.977	1.007	1.040	1.076	1.114	1.155	1.200	1.249	1.302	1.361	1.425	1.497
.50	.941	.968	.997	1.028	1.062	1.098	1.136	1.178	1.224	1.274	1.329	1.389	1.454	1.528
	327°	326°	325°	324°	323°	322°	321°	320°	319°	318°	317°	316°	315°	303°
0.46	1.480	1.564	1.658	1.765	1.887	2.029	2.193	2.388	2.622	2.907	3.262	3.718	4.324	4.479
.47	1.512	1.598	1.694	1.803	1.928	2.073	2.241	2.440	2.679	2.970	3.333	3.799	4.418	4.577
.48	1.545	1.632	1.730	1.842	1.969	2.117	2.289	2.492	2.736	3.033	3.404	3.880	4.512	4.674
.49	1.577	1.666	1.766	1.880	2.010	2.161	2.336	2.544	2.793	3.096	3.475	3.961	4.606	4.772
.50	1.609	1.700	1.802	1.918	2.051	2.205	2.384	2.596	2.850	3.160	3.546	4.042	4.700	4.869
	302°	301°	300°	299°	298°	297°	296°	295°	294°	293°	292°	291°	290°	289°
0.46	3.832	3.346	2.975	2.677	2.434	2.232	2.061	1.915	1.790	1.680	1.583	1.497	1.420	1.351
.47	3.916	3.422	3.040	2.735	2.487	2.280	2.106	1.957	1.829	1.716	1.617	1.529	1.451	1.381
.48	3.999	3.495	3.105	2.794	2.540	2.329	2.151	1.999	1.868	1.753	1.652	1.562	1.482	1.410
.49	4.082	3.568	3.169	2.852	2.593	2.377	2.196	2.040	1.907	1.789	1.686	1.594	1.513	1.440
.50	4.165	3.640	3.234	2.910	2.646	2.426	2.240	2.082	1.946	1.826	1.720	1.627	1.544	1.469
	288°	287°	286°	285°	284°	283°	282°	281°	280°	279°	278°	277°	276°	275°
0.46	1.289	1.233	1.182	1.135	1.093	1.053	1.017	0.983	0.952	0.923	0.896	0.870	0.847	0.825
.47	1.317	1.260	1.208	1.160	1.116	1.076	1.039	1.004	0.972	0.943	.915	.889	.865	.843
.48	1.345	1.287	1.234	1.185	1.140	1.099	1.061	1.026	0.993	0.963	.935	.908	.884	.861
.49	1.373	1.314	1.259	1.209	1.164	1.122	1.083	1.047	1.014	0.983	.954	.927	.902	.879
.50	1.402	1.340	1.285	1.234	1.188	1.144	1.105	1.068	1.034	1.003	.974	.946	.920	.896

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APPENDIX II.

REPORT

ON THE

DIFFERENCE OF LONGITUDE

BETWEEN

WASHINGTON

AND

DETROIT, MICHIGAN;

CARLIN, NEVADA;

AND

AUSTIN, NEVADA

BY

J. R. EASTMAN,
PROFESSOR OF MATHEMATICS UNITED STATES NAVY

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REPORT ON THE DIFFERENCE OF LONGITUDE BETWEEN WASHINGTON AND DETROIT, (MICH.,) CARLIN, (NEV.,) AND AUSTIN, (NEV.)

UNITED STATES NAVAL OBSERVATORY,
Washington, D. C., February 26, 1874.

SIR: I have the honor to submit the following report of special work performed, in compliance with the order of the Superintendent of the Observatory, in 1871.

INTRODUCTION.

This work was undertaken, at the request of Maj. C. B. Comstock and Lieut. G. M. Wheeler, United States Engineers, first, to determine, by the telegraphic exchange of clock-signals, the longitude of the observatory of the Lake Survey at Detroit, Mich., in charge of Major Comstock; and, secondly, to determine, by a similar exchange of clock and chronometer signals, the longitude of several stations in Nevada occupied by Lieutenant Wheeler, in charge of explorations in Nevada, Utah, and Arizona.

The observations and computations at this observatory were made by myself, and those at Detroit by Mr. O. B. Wheeler; the observations at Carlin and Austin were made by Mr. E. P. Austin, and the computations are by Dr. F. Kampf.

EXCHANGE OF SIGNALS.

The plan for exchanging signals proposed by General C. B. Comstock contemplated, first, the transmission of signals from Carlin through Detroit to the chronograph in this observatory until four coincidences were obtained between the Carlin mean-time chronometer and the observatory-clock; then seconds-signals from the observatory clock were to be sent through Detroit to Carlin until four more coincidences were obtained; secondly, the observer at Carlin was to observe six time-stars and register his observations on the observatory-chronograph; and, thirdly, a set of signals, similar to the first, was then to be exchanged between Carlin and the Observatory.

The first and third items of this plan were such as could be easily carried out, but the second I considered almost impossible. I made no objection to it, however, for I barely hoped that a favorable combination of circumstances might enable us to test the relative merits of the clock and the star-signals over this long line.

I was notified that the observers at Carlin and Detroit would be ready to work on May 16; but, though it was clear here and at Carlin, we were not able to exchange signals, on account of a series of storms between Washington and Chicago. On May 19 I sent break-circuit signals from the clock to Carlin, but the Carlin observer reported

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that the signals were "too long" and he could not use them. Make-circuit signals were then tried, but they did not get through; they were only barely perceptible in the Chicago office.

At the suggestion of the observer at Carlin, break-circuit signals were sent at intervals of ten seconds for one minute; then, after an interval of thirty seconds, another set was forwarded, until three sets were sent.

These signals were sent with the ordinary message-key by breaking the circuit, in coincidence with the beat of the clock, as denoted by the sounder in the local circuit.

After sending these signals, the main circuit was broken, and it was impossible to communicate with Carlin again on that night.

On failing to receive signals from Carlin, communication was established with Detroit, and signals exchanged. The observatory-clock and chronograph were so connected with the main circuit that the clock-beats were recorded on the observatory chronograph and also on the chronograph at Detroit.

Seconds-signals were thus sent from the observatory-clock to the Detroit chronograph in two sets, and two similar sets of signals were received on the observatory-chronograph from the Detroit clock.

Much annoyance and difficulty were experienced during the work, especially in that with Carlin, by the frequent interruptions along the line.

On May 23 the observer at Carlin objected to the seconds-signals from the clock, and signals similar to those sent May 19 were transmitted.

Signals were received on the observatory-chronograph from Carlin in spite of the frequent interruptions along the line. A portion of the signals were sent at intervals of ten seconds and the remainder at intervals of five seconds. They were transmitted with the ordinary message-key by breaking the circuit in coincidence with the beat of a mean-time chronometer.

Two sets of signals were exchanged with Detroit in the same way as on May 19.

On May 24 signals were exchanged with Carlin and with Detroit in the same way as on May 23.

The exchange on May 24 finished the work with Detroit and also with Carlin; for, after waiting in vain until June 1 to get another opportunity to exchange signals on one more night with the observatory, Lieutenant Wheeler reported that he should move to his next station.

On June 16 Mr. E. P. Austin occupied a station at Austin, Nev., and on that night signals were exchanged between that station and this observatory, in the same manner as between Carlin and the observatory, except that the signals from the observatory were sent at intervals of ten seconds by the clock, by switching it into the main line just before each tenth second. The weather prevented further exchange of signals with Austin, Nev.

TELEGRAPHIC CONNECTIONS.

Washington to Detroit.

On May 19 and 24 there were repeaters in the circuit at Philadelphia, Pittsburgh, and Cleveland; miles of wire, 829.

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On May 23 repeaters were in the circuit at Philadelphia, Pittsburgh, Cincinnati, and Cleveland; miles of wire, 1,250.

Washington to Carlin.

On May 19 and 24 there were repeaters in the circuit at Philadelphia, Pittsburgh, Cleveland, Detroit, Chicago, Omaha, Cheyenne, and Corinne; miles of wire, 2,943.

On May 24 there were repeaters at Philadelphia, Pittsburgh, Cincinnati, Cleveland, Detroit, Chicago, Omaha, Cheyenne, and Corinne; miles of wire, 3,364.

Washington to Austin.

On June 16 there were repeaters in the circuit at Philadelphia, Pittsburgh, Cincinnati, Cleveland, Detroit, Chicago, Omaha, Cheyenne, Corinne, and Reno; miles of wire, 3,847.

OBSERVATIONS TO DETERMINE THE CLOCK-CORRECTION AT THE UNITED STATES NAVAL OBSERVATORY.

The instrument used in the observations is that known as the "meridian transit," which has been in use at the Observatory for many years, and is now situated in the east wing of the building. A description of this instrument may be found in the Washington Astronomical and Meteorological Observations for 1862.

The transit is now employed under the direction of Prof. M. Yarnall, U. S. N., in observing stars for the "General Catalogue;" and as I made my observations for time after the regular work with the instrument was closed for the night, I used the same observations for collimation which he made for the reduction of his regular work.

The system of transit-threads in this instrument is composed of five groups or sets. When the clamp-end of the axis is east, the set which is first reached by a star in its transit above the pole is known as set A, and the others are known as sets B, C, D, and E. When the instrument is reversed the order of the sets is of course reversed, E being first reached by a star; but, in order to avoid confusion, no mention of reversal of sets is made except in the case of the reduction of broken observations. During the early portion of 1871, the equatorial interval between each thread in the five sets, and the mean of sets B, C, and D, were found to be as below:

Thread.	Interval.	Thread.	Interval.	Thread.	Interval.	Thread.	Interval.	Thread.	Interval.
	s.		s.		s.		s.		s.
A_1	37.897			C_1	3.183	D_1	15.146	E_1	30.003
A_2	35.972			C_2	1.654	D_2	17.589	E_2	32.647
A_3	34.308	B_1	19.216	C_3	0.014	D_3	19.110	E_3	34.153
A_4	32.745	B_2	17.563	C_4	1.639			E_4	35.820
A_5	30.205	B_3	15.069	C_5	3.221			E_5	37.693

The clock used is that known as the "Mural Clock," and is situated in the room with the transit. It is connected with the chronograph in the usual way, and closes

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the circuit at each second, except at the sixtieth second of each minute, when a small ivory lever, on the axis of the escapement-wheel, raises a very delicate spring, which forms a portion of the circuit, and prevents the closing of the circuit at that instant.

The observations of all but circumpolar stars were recorded in the usual manner by the chronograph, which is described in the annual volume for 1862.

In the reduction of the observations for time, whenever a broken set of observations occurred, each thread was reduced separately, by applying the proper interval from the above table. When the clamp is east, the sign of the reduction is + from A_1 to C_3 inclusive.

INSTRUMENTAL CORRECTIONS.

The corrections to the observed transit of a star were derived from the observed and computed errors c', n', and m'.

The error of collimation is represented by c'; the equatorial value of the distance between the line of collimation and the true meridian at the pole, by n'; and the distance between the line of collimation and the true meridian at the equator, by m'.

The quantities represented by n' and m' are used instead of errors of azimuth and level.

By means of a collimating eye-piece, the error of collimation and level was determined by reversing the instrument over a basin of mercury, and measuring, with the right-ascension micrometer, the distance between the central thread and its image reflected from the mercury.

If we let—

c, n, and m represent the corrections obtained from the observed and computed errors c', n', and m';

2Δ, the distance of the central thread west of its image when the clamp-end of the axis is east;

$2\Delta'$, the distance of the central thread west of its image when the clamp-end of the axis is west;

p, the correction for the excess of the radius of the clamp-pivot, $= 0^s.008$;

r, the equatorial distance of the mean of sets B, C, and D from the middle thread, $= 0^s.014$;

a, the correction for diurnal aberration, $= 0^s.016$;

b, the level-correction;

α, the Nautical Almanac place of the star;

α', the observed place of the star;

δ, the declination of the star;

φ, the latitude of the observing-station;

C'', the approximate clock-correction; and

C, the clock-correction determined by the observations of each star,

we have the following formulas, which have been used in reducing the observations for time. n was determined from the observations of circumpolar stars. The

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quantities Δ and Δ' are given in revolutions of the micrometer-head, each revolution being $= 1^s.5865$:

$$c = \tfrac{1}{2}(\Delta - \Delta') - p - r - a \text{ for clamp east.}$$
$$c = -\tfrac{1}{2}(\Delta - \Delta') + p + r - a \text{ for clamp west.}$$

$$b = -\tfrac{1}{2}(\Delta + \Delta') - p \text{ for clamp east.}$$
$$b = -\tfrac{1}{2}(\Delta + \Delta') + p \text{ for clamp west.}$$

$$n = \frac{\alpha - (\alpha' + C' + c \sec \delta)}{\sec \delta}$$

$$m = -n \tan \varphi + b \sec \varphi$$

$$C = \alpha - (\alpha' + m + n \tan \delta + c \sec \delta)$$

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Observed Clock-Corrections at the United States Naval Observatory.

Date.	Number.	Object	Seconds of Transit over Wires. I.	II	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	Mean.	Instrumental Correction.	Observed Place.	Adopted Right Ascension.	Clock-Correction.
1871.			s.	s.	s	s.	s	s.	s.	s.	s.	s.	s.	m. s.		s.	s.	h. m. s		s.
May 19	1	ϵ Bootis . . .	1.5	3.3	6.1	19.6	21.4	23.2	25.0	26.8	40.4	43.1	44.8	39 23.20	+	0.08	23.28	14 39 22.64	−	0.64
	2	β Bootis . . .	. .	. .	. .	3.3	5.3	7.4	9.5	11.6	. .	. .	. .	57 7.42	+	0.15	7.57	14 57 6.94	−	0.63
	3	β Libræ . . .	46.6	48.2	50.8	3.1	4.6	6.2	7.8	9.6	21.6	24.0	25.5	10 6.17	−	0.07	6.10	15 10 5.42	−	0.68
	4	μ^1 Bootis . . .	15.0	17.0	19.9	35.4	37.2	39.1	41.3	43.2	58.4	1.6	3.6	19 39.25	+	0.13	39.38	15 19 38.76	−	0.62
	5	α Cor. Borealis .	. .	. .	. .	32.8	35.5	37.0	49.5	52.4	54.0	56.0	58.1	29 15.70	+	0.06	15.76	15 29 15.11	−	0.65
	6	α Serpentis . .	37.7	39.3	41.8	53.8	55.3	56.9	58.6	0.2	12.2	14.6	16 2	37 56.96	−	0.02	56.94	15 37 56.29	−	0.65
	7	ϵ Serpentis . .	. .	. .	. .	21.9	23.5	25.2	26.9	28.5	. .	. .	. .	44 25.20	−	0.03	25.17	15 44 24.60	−	0.57
	8	δ Aquilæ . . .	42.4	43.8	46.2	58.5	59.9	1.5	3.0	4.4	16.6	18.8	20.5	19 1.42	−	0.03	1.39	19 19 0.57	−	0.82
	9	κ Aquilæ . . .	39 3	40.9	43.8	55.4	57.2	58.8	0.5	2.2	13.9	16.5	18.2	29 58.79	−	0.06	58.73	19 29 57.93	−	0.80
	10	γ Aquilæ . . .	49.6	51.5	53.8	6.0	7.5	9.1	11.1	12.8	24.6	27.3	28.5	40 9.25	−	0.01	9.24	19 40 8.46	−	0.78
	11	α Aquilæ . . .	11.6	13.1	15.9	27.7	29.3	30.9	32.5	34.1	46.4	48.9	50.5	44 30.99	−	0.01	30.98	19 44 30.19	−	0.79
	12	β Aquilæ . . .	41.0	42.6	45.0	57.0	58.5	0.1	1.8	3.2	15.4	17.8	19.4	49 0.16	−	0.02	0.14	19 48 59.39	−	0.75
	13	λ Ursæ Minoris.	. .	. .	. .	54.5	17.0	40.0	7.0	31.0	. .	. .	. .	53 42.16	+	14.87	57.03	19 53 56.20		
23	14	η Herculis . .	. .	. .	. .	. .	. .	. .	6.3	9.7	11.9	14.0	16.5	38 27.51	−	0.13	27.38	16 38 30.23	+	2.85
	15	κ Ophiuchi . .	13.2	14.6	17.0	29.5	31.1	32.6	34.2	35.8	48.0	50.4	52.1	51 32.59	−	0.16	32.43	16 51 35.20	+	2.77
	16	d Herculis . .	. .	28.3	31.3	45.6	47.6	49.5	51.5	53.4	7.8	10.8	. .	56 49.55	−	0.13	49.42	16 56 52.28	+	2.86
	17	α^1 Herculis . .	25.1	26.5	. .	41.3	43.0	44.8	46.5	48.0	0.3	2.8	. .	8 44.74	−	0 15	44.59	17 8 47.40	+	2.81
	18	δ Ursæ Minoris .	51.0	16.5	58.0	20.5	45.0	14.0	44.0	6.5	29.5	11.0	40.0	14 14.18	−	0.77	13.41	18 14 16.13		
	19	δ Aquilæ . . .	. .	. .	. .	. .	13.2	15.7	17.3	28.5	31.0	32.5	. .	36.1	18 58.17	−	0.16	58.01	19 19 0.68	+	2.67
	20	γ Aquilæ . . .	46.6	48.1	50.5	2.7	4.5	6.1	7.7	9.2	21.5	23.8	25.6	40 6.03	−	0.15	5.88	19 40 8.57	+	2.69
	21	α Aquilæ . . .	8.4	9.8	12.2	24.5	26.1	27.7	29.4	31.0	43.0	45.7	47.1	44 27.72	−	0.16	27.56	19 44 30.30	+	2.74
	22	β Aquilæ . . .	37.8	39.3	41.7	53.9	55.4	57.0	58.6	0.2	12.2	14.6	16.3	48 57.00	−	0.16	56.84	19 48 59.50	+	2.66
	23	τ Aquilæ . . .	29.3	30.8	33.2	45.4	46.9	48.5	50.1	51.7	3.6	. .	7.8	57 48.51	−	0.16	48.35	19 57 51.13	+	2.78
24	24	α Serpentis . .	35.1	36.4	39.0	51.1	52.5	54.1	55.8	57.2	9.5	12.1	13.9	37 54.25	−	0.11	54.14	15 37 56.33	+	2.19
	25	ϵ Serpentis . .	3.4	4.9	7.4	19.5	21.0	22.7	24.2	25.7	37.8	40.3	42.1	44 22.64	−	0.11	22.53	15 44 24.66	+	2.13
	26	ϵ Cor. Borealis .	52.9	54.6	57.2	10.9	12.5	14.4	16.2	18.1	31.5	34.3	36.2	52 14.44	−	0.09	14.35	15 52 16.43	+	2.08
	27	δ Ophiuchi . .	15.5	17.1	19.7	31.5	33.1	34.7	36.2	37.8	49.8	52.2	54.0	7 34.69	−	0.13	34 56	16 7 36.67	+	2.11
	28	δ Ursæ Minoris .	. .	. .	. .	21.0	48.5	14.5	40.0	9.0	. .	. .	. .	14 14.66	−	0.51	14.15	18 14 16.26		
	29	α Lyræ . . .	9.3	11.1	14.2	29.6	31.5	33.6	35.8	37.7	53.1	56.1	58.3	32 33.66	−	0.08	33.58	18 32 35.79	+	2.21
	30	β Lyræ . . .	55.4	57.3	0.3	14.5	16.3	18.4	20.3	22.3	36.4	39.4	41.5	45 18.37	−	0.09	18.28	18 45 20.43	+	2.15
June 16	31	α^1 Herculis . .	29.7	31.4	34.1	46.3	47 9	49.7	51.4	52.9	5.3	7.8	9.6	8 49.64	+	0.22	49.86	17 8 47.65	−	2.21
	32	α Ophiuchi . .	40.6	42.7	45.2	57.3	58.9	0.5	2.3	4.0	16.0	18.6	20.2	29 0.57	+	0.21	0.78	17 28 58.52	−	2.26
	33	μ Herculis . .	. .	. .	. .	25.0	26.5	28.2	30.1	32.0	45.5	48.2	50.0	41 28.35	+	0.30	28.65	17 41 26.42	−	2.23
	34	δ Ursæ Minoris .	. .	. .	. .	21.5	48.0	15.0	41.5	9.0	. .	. .	. .	14 15.00	+	4.92	19.92	18 14 17.67		
	35	1 Aquilæ . . .	. .	. .	. .	11.8	13.3	15.1	16.7	18.4	30.2	32.9	34.3	28 15.04	+	0.12	15.16	18 28 12.95	−	2.21
	36	α Lyræ . . .	13.5	15.5	18.9	34.2	36.1	38.0	40.1	42.1	57.3	0.7	2.7	32 38.10	+	0.36	38 46	18 32 36.20	−	2.26
	37	β Lyræ . . .	59.7	2.0	4.9	19.1	20.9	22.9	24.9	26.6	41.0	43.9	45.6	45 22.86	+	0.33	23.19	18 45 20.87	−	2.32
	38	ζ Cygni . . .	7.9	9.8	12.7	26.6	28.2	30.1	32 2	33.8	47.5	50.2	52.0	7 30.09	+	0.31	30.40	21 7 28.08	−	2.32
	39	1 Pegasi . . .	50.0	51.8	54.4	7.1	8.7	10.5	12.2	14.0	26.6	29.2	31.1	16 10.51	+	0.24	10.75	21 16 8.45	−	2.30
	40	β Aquarii. . .	29.9	31.5	34.0	46.0	47.6	49.2	50.9	52.5	4.5	7.1	8.5	24 49.25	+	0.13	49.38	21 24 47.15	−	2.23
	41	ξ Aquarii. . .	36.9	38.5	40.9	53.3	54.7	56.2	57.8	59.5	. .	. .	. .	30 56.27	+	0.12	56.39	21 30 54.09	−	2 30
	42	ϵ Pegasi . . .	34.8	36.5	38.9	51.0	52.6	54 2	55.8	57.4	9.5	11.8	13.5	37 54.17	+	0.20	54.37	21 37 52.09	−	2.28

REMARKS.

Nos. 2, 7, 13, 23, set C.
14, set E.
16, B_1 and D_2 rejected.
17, B_3 and D_3 rejected.
19, sets D and E, E_1 rejected.
23, D_2 rejected.
33, sets C and D.
34, set C. Cloudy.
35, sets C and D.
41, sets B and C.
On May 23 and 24 the stars were very unsteady.

COLLIMATION.

May 19.9. Image east 0r.16, clamp east.
May 19.9. Image west 0r.19, clamp west.
May 23.9. Image west 0r.17, clamp west.
May 24.9. Image west 0r.19, clamp west.
May 24.9. Image east 0r.10, clamp east.
June 16.9. Image west 0r.20, clamp east.
June 16.9. Image west 0r.42, clamp west.
On May 19 and June 16 the clamp was east, and on May 23 and 24 it was west.

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The values of m, n, and c, used in the reductions, are as follows:

Date.		m	n	c
		s.	s.	s.
May	19	− 0.143	+ 0.184	+ 0.102
	23	− 0.046	+ 0.088	− 0.114
	24	− 0.010	+ 0.082	− 0.110
June	16	+ 0.113	+ 0.242	+ 0.050

From the clock-corrections obtained from the observations the following clock-corrections and hourly rates were computed by the method of least squares. These corrections and rates have been employed to determine the error of the clock at the time of the interchange of signals on each night:

Date.		Sidereal Hour.	Correction.		Hourly Rate.
		h.	s.	s.	s.
May	19	14.0	− 0.594	± 0.007	− 0.034
	23	16.0	+ 2.854	± 0.010	− 0.039
	24	15.0	+ 2.117	± 0.012	+ 0.016
June	16	17.0	− 2.234	± 0.007	− 0.012

LONGITUDE OF DETROIT, MICHIGAN.

Clock-Corrections and Rates at Detroit.

The following extract from a letter from Major Comstock gives the location of the observatory at Detroit; a description of the instruments; a list of stars observed, together with the method of reduction; the observed places of the clock-stars; and the deduced clock corrections and rates:

The instrument used here in determining the clock-correction was a portable transit of the Troughton & Simms make; the focal length of its object-glass being 42 inches. The sidereal clock and the chronograph were, respectively, Nos. 184 and 216, Bond & Son. The length of the cylinder of the chronograph is 13.8 inches, its diameter 6 inches, and it records for two and one-half hours without change of paper.

The present Lake-Survey observatory is situated on Grand River avenue, in rear of the Lake-Survey office, and was built in March of the present year. The east-transit stone pier used in this connection is 143.7 feet (equal to $0^s.127$) west, and 146.6 feet (equal to $1''.45$) north of the west-transit pier of the former observatory, and 321.0 feet (equal to $0^s.285$) west, and 294.0 feet (equal to $2''.906$) north from the southwest corner of the stone foundation of the Westminster Church, on Washington avenue. The observatory is near a paved street, on which loaded wagons and street-cars are passing until a late hour. On this account, stars observed before Polaris were rejected; there being two on the 19th, one on the 23d, and one on the 24th.

Owing to the disturbances incident to the situation of the observatory, the daily rate of the clock has been considered of no value from the beginning. The rate, however, during the time of observation on any night when the disturbances had nearly ceased, may be considered as uniform.

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The clock-corrections and the instrumental errors were deduced by the method of least squares; the rate of the clock being retained as an unknown quantity.

In the following tables—

$C\,\Delta i$ = reduction to middle wire;
Aberr. = diurnal aberration;
$(t_1 - t_2)\rho$ = correction for rate to mean of observed times;
$A\,a$ = correction for azimuth;
$B\,b$ = correction for level;
$C\,c$ = correction for collimation;
t' = observed time, or mean of five wires;
α = right ascension;
Δt = clock-correction; and
v = residuals obtained from mean Δt.

Computation of Clock-Correction for Clock No. 184, *May* 19, 1871.

Ill.	Star.	$C\,\Delta i$	Aberr.	$(t_1-t_2)\rho$	$A\,a$	$B\,b$	$C\,c$	t'	α	Δt	v
		s.	s.	s.	s.	s.	s.	h. m. s.	s.	s.	s.
E.	Polaris, L. C. . .	. .	+0 58	+0.43	+2.88	+2.01	+0.29	13 11 24.75	59.40	−31.54	0.00
W.	Polaris, L. C. . .	. .	+0.58	+0.40	+2.88	−2.23	−0.29	11 29.60	. .	−31.54	0.00
	ζ Virginis . . .	+0.03	−0.01	+0.37	+0.06	+0.06	+0.01	28 39.41	8.37	−31.56	+0.02
	η Ursæ Majoris .	+0.05	−0.02	+0.33	−0.02	+0.15	+0.01	42 59.87	29.05	−31.32	−0.22
	η Bootis. . . .	+0.03	−0.02	+0.32	+0.04	+0.13	+0.01	49 4.80	33.80	−31.51	−0.03
	τ Virginis . . .	+0.03	−0.01	+0.30	+0.06	+0.12	+0.01	13 55 37.29	6.13	−31.67	+0.13
	ρ Bootis. . . .	+0.04	−0.02	+0.22	+0.03	+0.25	+0.01	14 26 48.85	17.67	−31.71	+0.17
W.	ε Bootis. . . .	+0.03	−0.02	+0.19	+0.03	+0.20	+0.01	39 53.85	22.66	−31.63	+0.09
E.	β Bootis. . . .	−0.04	−0.02	+0.15	0.00	+0.09	−0.01	14 57 38.34	6.91	−31.60	+0.06
	β Libræ	−0.03	−0.01	+0.12	+0.07	+0.05	−0.01	15 10 36.60	5.42	−31.37	−0.17
	μ^1 Bootis. . . .	−0.04	−0.02	+0.10	+0.01	+0.09	−0.01	20 10.24	38.76	−31.61	+0.07
	α Serpentis . . .	−0.03	−0.02	+0.05	+0.05	+0.07	−0.01	38 27.62	56.27	−31.46	−0.08
	ε Serpentis . . .	−0.03	−0.01	+0.03	+0.05	+0.07	−0.01	15 44 55.94	24.62	−31.42	−0.12
	δ Ophiuchi . . .	−0.03	−0.01	−0.03	+0.06	+0.07	−0.01	16 8 7.94	36.60	−31.39	−0.15
	ζ Aquilæ . . .	−0.03	−0.01	−0.45	+0.05	+0.14	−0.01	19 0 1.73	29.82	−31.60	+0.06
	ω Aquilæ . . .	−0.03	−0.01	−0.48	+0.05	+0.11	−0.01	12 18 40	46.62	−31.41	−0.13
	γ Aquilæ . . .	−0.03	−0.01	−0.55	+0.05	+0.16	−0.01	40 40.43	8.43	−31.61	+0.07
	α Aquilæ . . .	−0.03	−0.01	−0.57	+0.05	+0.15	−0.01	45 2.14	30.15	−31.57	+0.03
E.	β Aquilæ . . .	−0.03	−0.01	−0.58	+0.05	+0.15	−0.01	19 49 31.56	59.36	−31.77	+0.23
										−31.54	

$a = +\ 0^s.092$ = Azimuth constant.
$c = -\ 0^s.007$ = Collimation constant.
$\rho = +\ 0^s.1493$ = Rate per hour.
$\Delta t = -\ 31^s.540$ Reduced to $15^h\ 57^m$.
$p = \ \ 15.685$ = Weight of Δt.
$r = \pm\ 0^s.023$ = Probable error of Δt.

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Computation of Clock-Correction for Clock No. 184, *May* 23, 1871.

Ill.	Star.	C Δi	Aberr.	$(t_1-t_2)\rho$	A a	B b	C c	t'	a	Δt	v
		s.	s.	s.	s.	s.	s.	h. m. s.	s.	s.	s.
E.	Polaris, L. C. . .	. .	+0.58	+0.44	−11.92	−1.56	+0.83	13 11 55.87	2.14	−42.10	+0.02
W.	Polaris, L. C. . .	. .	+0.58	+0.41	−11.92	−3.78	−0.83	11 59.76	. .	−42.08	0.00
	ζ Virginis . . .	+0.03	−0.01	+0.38	− 0.26	+0.12	+0.02	28 50.01	8.36	−41.93	−0.15
	η Ursæ Minoris .	+0.05	−0.02	+0.35	+ 0.08	+0.30	+0.03	43 10.32	29.00	−42.11	+0.03
	η Bootis. . . .	+0.03	−0.01	+0.33	− 0.16	+0.19	+0.02	49 15.43	33.79	−42.04	−0.04
	τ Virginis . . .	+0.03	−0.01	+0.31	− 0.24	+0.17	+0.02	13 55 47.91	6.13	−42.06	−0.02
W.	α Bootis. . . .	+0.03	−0.01	+0.27	− 0.16	+0.26	+0.02	14 10 29.69	47.92	−42.18	+0.10
E.	5 Ursæ Minoris .	−0.13	−0.06	+0.23	+ 0.90	+0.52	−0.08	28 35.24	54.47	−42.15	+0.07
	α^2 Libræ	−0.03	−0.01	+0.20	− 0.34	+0.08	−0.02	44 28.17	46.09	−41.96	−0.12
	ψ Bootis. . . .	−0.04	−0.02	+0.16	− 0.11	+0.16	−0.02	14 59 38.71	56.60	−42.24	+0.16
	β Libræ	−0.03	−0.01	+0.13	− 0.30	+0.08	−0.02	15 10 47.54	5.45	−41.94	−0.14
	μ^1 Bootis. . . .	−0.04	−0.02	+0.11	− 0.04	+0.14	−0.03	20 20.95	38.77	−42.30	+0.22
	α Coronæ Borealis.	−0.04	−0.02	+0.08	− 0.11	+0.11	−0.02	29 57.40	15.13	−42.27	+0.19
	α Serpentis . . .	−0.03	−0.01	+0.06	− 0.22	+0.07	−0.02	38 38.46	56.30	−42.01	−0.07
	ε Serpentis . . .	−0.03	−0.01	+0.05	− 0.24	+0.07	−0.02	45 6.77	24.65	−41.94	−0.14
	ε Coronæ Borealis.	−0.04	−0.02	+0.03	− 0.11	+0.10	−0.02	15 52 58.65	16.49	−42.10	+0.02
	δ Sagittarii . . .	−0.03	−0.02	−0.45	− 0.35	+0.11	−0.02	19 10 49.10	6.29	−42.05	−0.03
	ω Aquilæ . . .	−0.03	−0.01	−0.46	− 0.20	+0.18	−0.02	12 29.52	46.73	−42.25	+0.17
E.	δ Aquilæ . . .	−0.03	−0.01	−0.48	− 0.24	+0.16	−0.02	19 43.29	0.63	−42.04	−0.04
W.	κ Aquilæ . . .	+0.03	−0.01	−0.51	− 0.30	+0.13	+0.02	30 40.48	58.00	−41.84	−0.24
	γ Aquilæ . . .	+0.03	−0.01	−0.53	− 0.21	+0.17	+0.02	40 51.03	8.54	−41.96	−0.12
	α Aquilæ . . .	+0.03	−0.01	−0.54	− 0.22	+0.19	+0.02	45 12.87	30.26	−42.08	0.00
W.	β Aquilæ . . .	+0.03	−0.01	−0.55	− 0.23	+0.20	+0.02	19 49 42.12	59.47	−42.11	+0.03
										−42.08	

$a = -\ 0^s.381$ = Azimuth constant.
$c = -\ 0^s.020$ = Collimation constant.
$\rho = +\ 0^s.1471$ = Rate per hour.
$\Delta t = -\ 42^s.080$ Reduced for rate to $16^h\ 4^m$.
$p = \quad 20.161$ = Weight of Δt.
$r = \pm\ 0^s.019$ = Probable error of Δt.

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Computation of Clock-Correction for Clock No. 184, *May* 24, 1871.

Ill.	Star.	C $\triangle i$	Aberr.	$(t_1-t_2)\rho$	A a	B b	C c	t'	a	$\triangle t$	v
		s.	s.	s.	s.	s.	s.	h. m. s.	s.	s.	s.
W.	Polaris, L. C. . .	. .	+0.58	+0.27	−8.20	−3.78	−2.69	13 12 1.85	2.74	−45.29	+0.01
E.	Polaris, L. C. . .	. .	+0.58	+0.25	−8.20	−2.23	+2.69	11 54.94	. .	−45.29	+0.01
	ζ Virginis . . .	−0.03	−0.01	+0.24	−0.18	+0.09	−0.07	28 53.43	8.35	−45.12	−0.16
	η Bootis. . . .	−0.03	−0.02	+0.20	−0.11	+0.12	−0.07	13 49 18.88	33.78	−45.19	−0.09
	a Bootis. . . .	−0.03	−0.02	+0.17	−0.11	+0.12	−0.07	14 10 33.12	47.92	−45.26	−0.02
	ρ Bootis. . . .	−0.04	−0.02	+0.14	−0.06	+0.14	−0.07	27 3.00	17.66	−45.43	+0.15
	ε Bootis. . . .	−0.04	−0.02	+0.12	−0.08	+0.14	−0.07	40 7.97	22.66	−45.36	+0.08
E.	a^2 Libræ	−0.03	−0.01	+0.11	−0.23	+0.07	−0.07	44 31.33	46.09	−45.08	−0.20
W.	β Bootis. . . .	+0.04	−0.02	+0.09	−0.01	+0.22	+0.09	14 57 51.88	6.90	−45.39	+0.11
	β Libræ	+0.03	−0.01	+0.07	−0.21	+0.13	+0.07	15 10 50.52	5.45	−45.15	−0.13
	μ^1 Bootis. . . .	+0.04	−0.02	+0.06	−0.03	+0.31	+0.08	20 23.66	38.78	−45.32	+0.04
	a Coronæ Borealis.	+0.04	−0.02	+0.04	−0.08	+0.31	+0.07	30 0.16	15.14	−45.38	+0.10
	a Serpentis . . .	+0.03	−0.01	+0.02	−0.15	+0.23	+0.07	38 41.54	56.31	−45.42	+0.14
	ε Coronæ Borealis.	+0.04	−0.02	0.00	−0.08	+0.31	+0.07	53 1.54	16.49	−45.37	+0.09
	β Scorpii . . .	+0.03	−0.02	−0.01	−0.25	+0.14	+0.07	15 58 43.04	57.84	−45.16	−0.12
	δ Ophiuchi . . .	+0.03	−0.01	−0.02	−0.19	+0.20	+0.07	16 8 21.86	36.65	−45.29	+0.01
	d Sagittarii . . .	+0.03	−0.02	−0.32	−0.24	+0.07	+0.07	19 10 51.83	6.32	−45.10	−0.18
W.	ω Aquilæ . . .	+0.03	−0.01	−0.33	−0.14	+0.10	+0.07	12 32.20	46.75	−45.17	−0.11
E.	γ Aquilæ . . .	−0.03	−0.01	−0.37	−0.14	+0.08	−0.07	40 54.43	8.57	−45.32	+0.04
	a Aquilæ . . .	−0.03	−0.01	−0.38	−0.15	+0.08	−0.07	45 16.21	30.29	−45.36	+0.08
E.	β Aquilæ . . .	−0.03	−0.01	−0.39	−0.16	+0.07	−0.07	19 49 45.57	59.50	−45.48	+0.20
										−45.28	

$a = -$ 0^s.262 = Azimuth constant.
$c = -$ 0^s.065 = Collimation constant.
$\rho = +$ 0^s.0983 = Rate per hour.
$\triangle t = -$ 45^s.280 Reduced for rate to 15^h 54^m.
$p =$ 17^s.922 = Weight of $\triangle t$.
$r = \pm$ 0^s.020 = Probable error of $\triangle t$.

On the 23d there was one star rejected, and six on the 24th, five of which were zenith-stars; and the tortuous position in observing these stars gives a sufficient excuse for rejecting them. A former reduction, also by least squares, where all the stars were retained, made the final longitude greater by only 0^s.02.

The following table presents the clock corrections and rates, as furnished by Major Comstock:

Date.	By Clock.	Clock-Correction.	Rate per Hour.
	h. m.	s. s.	s.
May 19	15 57	− 31.54 ± 0.023	+ 0.1493
23	16 4	− 42.08 ± 0.019	+ 0.1471
24	15 54	− 45.28 ± 0.020	+ 0.0983

The data in the above table have been used in computing the Detroit clock-corrections in the following comparison of signals.

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The time given in these comparisons for each clock is the mean of eleven signals, read from the chronograph-sheets.

In August, 1871, Mr. O. B. Wheeler and I observed on three nights, at this observatory, for the purpose of finding the value of our personal equation, but the results were not so accordant as would warrant their use in this work. It was evident, however, that the true personal equation was very small.

Date.	Signals sent from—	Time of Mean of Signals by Washington Clock.	Correction of Washington Clock.	Local Sidereal Time of Mean of Signals.	Time of Mean of Signals by Detroit Clock.	Correction of Detroit Clock.	Local Sidereal Time of Mean of Signals.	Differences of Longitude.	Wave and Armature Time.	Final Difference of Longitude.
1871.		h. m. s.	s.	h. m. s.	h. m. s.	s.	h. m. s.	m. s.	s.	m. s.
May 19	W. to D.	18 49 59.03	− 0.76	18 49 58.27	18 26 30.00	− 31.91	18 25 58.09	24 0.18		
									0.16	24 0.34
	D. to W.	19 0 59.32	− 0.76	19 0 58.56	18 37 30.00	− 31.94	18 36 58.06	24 0.50		
23	W. to D.	18 58 38.85	+ 2.74	18 58 41.59	18 35 24.00	− 42.45	18 34 41.55	24 0.04		
									0.13	24 0.17
	D. to W.	19 4 45.10	+ 2.73	19 4 47.83	18 41 30.00	− 42.47	18 40 47.53	24 0.30		
24	W. to D.	18 1 12.30	+ 2.17	18 1 14.47	17 38 0.00	− 45.45	17 37 14.55	23 59.92		
									0.16	24 0.08
	D. to W.	18 15 12.60	+ 2.17	18 15 14.77	17 52 0.00	− 45.47	17 51 14.53	24 0.24		
								Mean	0.15	24 0.20

The Washington transit-instrument is 42.7 feet east of the center of the dome of the observatory; and that distance, in this latitude, is equal to $0^s.036$. Therefore, the transit-instrument in the Lake-Survey observatory in Detroit is west of the center of the dome of the Naval Observatory—

$$0^h\ 24^m\ 0^s.16$$

LONGITUDE OF CARLIN AND OF AUSTIN, NEVADA.

The latitude, description of instruments, methods of reducing the observations, and the computations of the corrections and rates of chronometers at Carlin and Austin, are simply copied, save in a very few instances, from the data and computations furnished by Lieut. G. M. Wheeler.

CARLIN, NEVADA.

Latitude, $+ 40^\circ\ 42'\ 26''.7$.

This station is situated on the bank of a small creek about 250 feet north of the railroad-track and 2,500 feet from the Humboldt River. The valley here is rather wide and comparatively level. The nearest hill of any consequence lies in the southwest.

The instrument used was a combined transit, made by Würdemann, of 26.0 inches focal-length and 1.75 inches aperture, and bearing the number 16. It was mounted on four pieces of redwood scantling, 4 by 4 inches, which were set in the ground about four feet and fastened above by cross-pieces of board.

Observations for time were made by means of a sidereal chronometer, Negus No. 1344. For exchange of signals a mean solar chronometer, Hutton No. 288, was always used.

The weather was cloudy most of the time. The clear nights were very cold, and often windy.

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The observations were conducted in a common wall-tent. The telegraphic apparatus and the chronometers were kept in the same tent.

Owing to the great range of temperature during the day, being often inside the tent 80° to 90°, the rates of the chronometers were very unsteady.

In the following tables, showing the observations and the deduced chronometer-corrections at Carlin and Austin—

T = the observed time, reduced to the mean of the wires and corrected for rate;
b B = correction for level of the instrument;
a A = correction for azimuth of the instrument;
c C = correction for collimation of the instrument;
T′ = corrected time of star-observations;
α = right ascension of the star; and
ΔT = resulting correction of chronometer.

CARLIN, *May* 19, 1871.

Name of Star.	Clamp.	T	b B	a A	c C	T′	α	ΔT
		h. m. s.	s.	s.	s.	h. m. s.	h. m. s.	m. s.
o Virginis. . .	E.	11 53 46.09	+0.06	+ 9.70	−0.23	11 53 55.62	11 58 38.97	+ 4 43.35
ε Corvi . . .	.	11 58 29.58	+0.02	+ 17.65	−0.25	11 58 47.00	12. 3 30.55	43.55
4 Draconis . .	.	12 2 24.58	+0.12	− 55.78	−1.14	12 1 27.78	6 10.99	43.21
13 Comæ . . .	.	13 3.16	0.00	+ 4.95	−0.26	13 7.85	17 50.99	43.14
δ Corvi. . . .	.	18 13.30	−0.04	+ 15.99	−0.24	18 29.01	23 12.86	43.85
β Corvi. . . .	.	22 36.70	−0.07	+ 17.87	−0.25	22 54.25	27 37.80	43.55
21 Cassiopeæ, L.C.	W.	31 24.60	−0.20	+ 61.85	−0.85	32 25.20	37 7.33	42.13
32 Camelopardalis.	.	45 37.38	+0.56	−122.48	+2.22	43 37.68	12 48 20.57	42.89
θ Virginis . . .	.	12 58 20.47	+0.02	+ 13.21	+0.23	12 58 33.93	13 3 17.38	43.45
α Virginis . . .	.	13 13 26.94	+0.04	+ 14.61	+0.23	13 13 41.82	13 18 25.07	43.25
ζ Virginis . . .	.	13 23 12.64	+0.07	+ 12.01	+0.23	13 23 24.95	13 28 8.37	+ 4 43.42

For $12^h\ 40^m$ local sidereal time the mean correction is $= + 4^m\ 43^s.254$.
Excluding the circumpolar stars, the correction is $= + 4^m\ 43^s.445$.

Normal Equations.

$$0 = - 2.51 + 11.00\,\delta t - 0.57\,a' + 1.28\,c$$
$$0 = + 18.44 - 0.57\,\delta t + 68.94\,a' + 62.19\,c$$
$$0 = + 35.55 + 1.28\,\delta t + 62.19\,a' + 140.36\,c$$

Whence—
$$\delta t = + 0^s.254$$
$$a' = - 0^s.058$$
$$c = - 0^s.230$$

The assumed azimuth constant was $+ 18^s.50$; consequently, the adopted azimuth constant was $+ 18^s.442$.

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CARLIN, *May* 23, 1871.

Name of Star.	Clamp.	T	bB	aA	cC	T′	a	△T
		h. m. s.	s.	s.	s.	h. m. s.	h. m. s.	m. s.
ζ Ophiuchi	E.	16 25 20.82	− 0.02	+ 4.66	− 0.01	16 25 25.25	16 30 4.89	+ 4 39.64
η Herculis	W.	33 49.96	− 0.22	+ 0.20	+ 0.02	33 49.96	38 30.22	40.26
ι Ophiuchi	.	43 12.84	− 0.17	+ 2.90	+ 0.01	43 15.58	47 55.84	40.26
κ Ophiuchi	.	46 52.46	− 0.18	+ 2.96	+ 0.01	46 55.25	51 35.16	39.91
ε Ursæ Minoris . .	.	16 55 14.38	− 0.72	−27.78	+ 0.08	16 54 45.96	16 59 25.94	39.98
α Herculis	.	17 4 4.77	− 0.15	+ 2.58	+ 0.01	17 4 7.21	17 8 47.38	40.17
ω Draconis	E.	17 33 13.82	− 0.63	− 7.35	− 0.03	17 33 5.81	17 37 46.01	+ 4 40.20

For $17^h\ 0^m$ local sidereal time the mean correction is $+ 4^m\ 40^s.060$.

Normal Equations.

$$0 = - 1.90 + 7.00\,\delta t - 3.90\,a' - 7.97\,c$$
$$0 = + 10.25 - 3.90\,\delta t + 27.26\,a' + 32.16\,c$$
$$0 = + 12.66 - 7.97\,\delta t + 32.16\,a' + 68.53\,c$$

Whence—

$$\delta t = + 0^s.060$$
$$a' = - 0^s.353$$
$$c = - 0^s.012$$

The assumed azimuth constant was $+ 6^s.00$, and the adopted azimuth constant was therefore $+ 5^s.647$.

CARLIN, *May* 24, 1871.

Name of Star.	Clamp.	T	bB	aA	cC	T′	a	△T
		h. m. s.	s.	s.	s.	h. m. s.	h. m. s.	m. s.
γ Cephi, L. C. . . .	E.	11 29 21.72	+ 1.22	− 4.18	+ 1.32	11 29 20.08	11 34 2.59	+ 4 42.51
β Leonis	.	37 49.86	− 0.55	− 0.48	− 0.31	37 48.52	43 29.27	40.75
γ Ursæ Majoris . .	.	42 23.65	− 0.97	+ 0.44	− 0.52	42 22.60	47 3.00	40.40
o Virginis	.	11 53 59.94	− 0.48	− 0.57	− 0.30	11 53 58.59	11 58 38.92	40.33
4 Draconis	.	12 1 30.32	− 1.84	+ 3.23	− 1.48	12 1 30.23	12 6 10.58	40.35
β Corvi	.	22 58.86	− 0.24	− 1.04	− 0.32	22 57.26	27 37.76	40.50
21 Cassiopeæ, L.C. .	W.	32 31.19	+ 0.34	− 3.57	− 1.11	32 26.85	37 6.05	39.20
32 Camelopardalis . .	.	43 30.87	− 2.68	+ 7.10	+ 2.90	43 38.19	12 48 19.81	41.62
θ Virginis	.	12 58 37.92	− 0.24	− 0.77	+ 0.30	12 58 37.21	13 3 17.36	40.15
α Virginis	.	13 13 45.64	− 0.15	− 0.85	+ 0.31	13 13 44.95	13 18 25.05	+ 4 40.10

For $13^h\ 0^m$ local sidereal time, excluding the circumpolar stars, the mean correction is $+ 4^m\ 40^s.372$.

Normal Equations.

$$0 = + 4.22 + 10.00\,\delta t + 0.63\,a$$
$$0 = - 89.14 + 0.63\,\delta t + 82.97\,a$$

Whence— $a = - 1^s.072$

The adopted error of collimation was $- 0^s.30$.

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CARLIN, *May* 24, 1871.

Name of Star.	Clamp.	T	*b* B	*a* A	*c* C	T′	*a*	△T
		h. m. s.	s.	s.	s.	h. m. s.	h. m. s.	m. s.
ε Serpentis	W.	15 40 45.54	− 0.06	− 1.25	+ 0.30	15 40 44.53	15 44 24.65	+ 4 40.12
ζ Ursæ Minoris . .	.	44 1.60	− 0.19	+ 6.32	+ 1.47	44 9.21	48 49.34	40.13
β^1 Scorpii	.	15 53 19.06	− 0.01	− 1.95	+ 0.32	15 53 17.42	15 57 57.84	40.42
δ Ophiuchi	.	16 2 57.60	0.00	− 1.48	+ 0.30	16 2 56.42	16 7 36.65	40.23
τ Herculis	E.	11 14.00	− 0.17	+ 0.32	− 0.44	11 13.71	15 53.70	39.99
η Draconis	.	17 36.72	− 0.24	+ 1.61	− 0.64	17 37.45	22 17.79	40.34
ζ Ophiuchi . . . 7	.	25 26.92	− 0.07	− 1.67	− 0.30	25 24.88	30 4.89	40.01
η Herculis . . .	.	16 33 51.10	− 0.13	− 0.07	− 0.39	16 33 50.51	16 38 30.22	+ 4 39.71

For $16^h\ 10^m$ local sidereal time, the mean correction is $+ 4^m\ 40^s.120$.

Normal Equations.

$$0 = - 2.78 + 8.00\,\delta t - 0.86\,a$$
$$0 = + 24.99 - 0.86\,\delta t + 11.74\,a$$

Whence—

$$\delta t = + 0^s.120$$
$$a = - 2^s.120$$

The adopted error of collimation was $- 0^s.30$.

The following table contains the adopted corrections and rates of the sidereal chronometer, Negus No. 1344:

Date.	Local Sidereal Time.	Correction of Chronometer.	Hourly Rate.
1871.	h.	m. s.	s.
May 19	12.667	+ 4 43.445	− 0.034
23	17.000	+ 4 40.060	+ 0.009
24	14.508	+ 4 40.246	+ 0.009

In exchanging signals, mean solar-time chronometer Hutton No. 288 was used. Its corrections and rates were determined by the following comparisons, and are shown in the table:

Date.	Negus No. 1344,	Hutton 288.
	h. m. s.	h. m. s.
May 19, a. m.	0 32 12.0	20 25 21.5
19, p. m.	13 30 20.0	9 21 20.0
19, p. m.	13 33 27.0	9 24 26.5
20, a. m.	1 41 31.0	21 30 29.5
20, a. m.	1 44 34.0	21 33 32.0
May 23, p. m.	13 27 18.0	9 2 24.5
23, p. m.	13 30 25.0	9 5 31.0
23, p. m.	13 33 34.0	9 8 39.5
23, p. m.	16 12 10.0	11 46 49.5
23, p. m.	16 15 15.0	11 49 54.0
May 24, p. m.	13 34 32.0	9 5 37.5
24, p. m.	13 37 35.0	9 8 40.0
2 , p. m.	15 30 19.0	11 1 5.5
24, p. m.	15 33 20.0	11 4 6.0

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From these comparisons, and the adopted corrections and rates of Negus No. 1344, the following table is derived:

Date.	Time by Hutton 288.	Hutton 288 *slow* of local Sidereal Time.	Hutton 288 losing per hour.
1871.	h. m. s.	h. m. s.	s.
May 19	9 22 53.25	4 13 43.666	9.9713
23	10 26 56.72	4 29 47.454	9.8478
24	10 4 52.25	4 33 44.496	9.8832

These values were used in the following computation of the difference of longitude from the exchange of signals:

Date.	Signals sent from—	Time of Mean of Signals by Washington Clock.	Correction of Washington Clock.	Local Sidereal Time of Mean of Signals.	Time of Mean of Signals by Carlin Chronometer.	Correction of Carlin Chronometer.	Local Sidereal Time of Mean of Signals.	Differences of Longitude.	Means.	Wave and Armature Time.	Final difference of Longitude.
1871.		h. m. s.	s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	s.	s.	h. m. s.
May 19	W. to C.	17 36 39.47	− 0.72	17 36 38.75	10 46 24.63	+ 4 13 57.55	15 0 22.18	2 36 16.57			
23	W. to C.	17 40 56.47	+ 2.79	17 40 59.26	10 34 53.81	+ 4 29 48.76	15 4 42.57	2 36 16.69			
		18 37 30.00	+ 2.75	18 37 32.75	11 31 18.02	+ 4 29 58.02	16 1 16.04	2 36 16.71	16.70		
										0.62	2 36 17.32
	C. to W.	17 55 44.24	+ 2.78	17 55 47.02	10 49.37.97	+ 4 29 51.18	15 19 29.15	2 36 17.87			
		18 2 51.22	+ 2.77	18 2 53.99	10 56 43.70	+ 4 29 52.34	15 26 36.04	2 36 17.95	17.93		
		18 28 43.92	+ 2.76	18 28 46.68	11 22 32.12	+ 4 29 56.58	15 52 28.70	2 36 17.98			
24	to C.	16 57 10.71	+ 2.15	16 57 12.86	9 47 14.76	+ 4 33 41.59	14 20 56.35	2 36 16.51			
		17 3 49.54	+ 2.15	17 3 49.54	9 53 52.33	+ 4 33 42.68	14 27 35.01	2 36 16.58	16.51		
		17 26 25.00	+ 2.16	17 26 27.16	10 16 24.33	+ 4 33 46.40	14 50 10.73	2 36 16.43			
										0.66	2 36 17.16
	C. to W.	17 12 30.06	+ 2.15	17 12 32.21	10 2 30.25	+ 4 33 44.10	14 36 14.35	2 36 17.86			
		17 19 28.81	+ 2.15	17 19 30.96	10 9 27.92	+ 4 33 45.25	14 43 13.17	2 36 17.79	17.82		

Giving each group of signals equal weight, we have, as the longitude resulting rom the work of the three nights,

$$2^h\ 36^m\ 17^s.24$$

As the Washington transit-instrument is $0^s.036$ east of the center of the dome, we have, finally, the Carlin station west of the center of the dome of the Naval Observatory,

$$2^h\ 36^m\ 17^s.20$$

AUSTIN, NEVADA.

Latitude, $+ 39^\circ\ 29'\ 21''.9$.

This station is situated in the cañon through which the road to Belmont passes. To the east of the station, a short distance above the Manhattan Mill, the land rises rapidly to Mount Prometheus; to the north there is a slope downward to the valley of the Reese River; to the south it descends a short distance to the bottom of the cañon, and then rises quite rapidly up a branch-cañon to a height of several hundred feet. Toward the west there is a descent for some distance, and then a considerable rise, to the crest of another hill.

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The instrument used was a combined transit, No. 16, by Würdemann, of 26.0 inches focal length and 1.75 inches aperture. It was mounted on three pieces of redwood scantling, 4 by 4 inches, set on the hard rock at a depth of about three feet, and fastened together above the ground by cross-pieces of board.

Observations for time were made by means of a sidereal chronometer, Negus No. 1344.

For exchange of signals, a mean solar chronometer, Hutton No. 288, was used.

At the time this station was occupied there was much cloudy weather, usually clearing off about 11^h p. m. and remaining clear until the afternoon of the next day.

The observations for time at Austin were made and reduced in the same way as those made at Carlin.

AUSTIN, NEVADA, *June* 16, 1871.

Name of Star.	Clamp.	T	b B	a A	c C	T′	AR.	△T
		h. m. s.	s.	s.	s.	h. m. s.	h. m. s.	s.
η Bootis.	E.	13 48 1.08	+ 0.22	+ 0.76	− 0.36	13 48 1.70	13 48 33.64	+ 31.94
50 Cassiopeæ, L. C. .	.	13 51 47.76	− 0.25	+ 6.15	+ 1.08	13 51 54.74	13 52 26.28	31.54
α Draconis	.	14 0 26.42	+ 0.53	− 2.11	− 0.80	14 0 24.04	14 0 55.45	31.41
α Bootis.	.	9 15.28	+ 0.29	+ 0.74	− 0.36	9 15.95	9 47.80	31.85
ι Cassiopeæ, L. C. .	W.	17 50.35	− 0.12	+ 5.04	− 0.86	17 54.41	18 26.44	32.03
θ Bootis.	.	20 17 51	+ 0.28	− 0.76	+ 0.56	20 17.59	20 49.86	32.27
5 Ursæ Minoris . .	.	27 24.62	+ 0.58	− 5.20	+ 1.43	27 21.43	27 53.23	31.80
ε Bootis.	.	14 38 49.72	+ 0.13	+ 0.48	+ 0.38	14 38 50.71	14 39 22.56	+ 31.85

For $14^h\ 30^m$ local sidereal time the mean correction is $+ 31^s.836$.

Normal Equations.

$$0 = + 0.08 + 8.00\,\delta t + 2.47\,a' - 3.15\,c$$
$$0 = + 1.00 + 2.47\,\delta t + 22.68\,a' + 5.99\,c$$
$$0 = + 14.82 - 3.15\,\delta t + 5.99\,a' + 46.35\,c$$

Whence—

$$\delta t = - 0^s.163$$
$$a' = + 0^s.063$$
$$c = - 0^s.339$$

Assumed azimuth constant $+ 2^s.00$; therefore the adopted azimuth constant is $= + 2^s.063$.

AUSTIN, NEVADA, *June* 16, 1871.

Name of Star.	Clamp.	T	b B	a A	c C	T′	AR.	△T
		h. m s.	s.	s.	s.	h. m. s.	h. m. s.	s.
d Sagittarii	E.	19 9 31.40	− 0.03	+ 4.44	− 0.36	19 9 35.45	19 10 6.88	+ 31.43
δ Draconis	.	12 9.85	− 0.15	− 6.00	− 0.89	12 2.81	12 34.46	31.65
δ Aquilæ	.	18 27.26	− 0.06	+ 2.93	− 0.34	18 29.79	19 1.17	31.38
κ Aquilæ	.	29 23.80	0.00	+ 3.56	− 0.34	29 27.02	29 58.59	31.57
γ Aquilæ	.	39 35.78	+ 0.04	+ 2.39	− 0.35	39 37.86	40 9.12	31.26
α Aquilæ	.	43 57.38	+ 0.06	+ 2.54	− 0.35	43 59.63	44 30.85	31.22
ε Draconis	.	19 48 15.98	+ 0.25	− 7.22	− 0.99	19 48 8.02	19 48 39.22	+ 31.20

For $19^h\ 30^m$ local sidereal time the mean correction is $+ 31^s.387$.

Normal Equations.

$$0 = - 0.55 + 7.00\,\delta t + 0.54\,a'$$
$$0 = + 0.68 + 0.54\,\delta t + 5.93\,a'$$

Whence—

$$\delta t = + 0.080$$
$$a' = - 0.122$$

Assumed azimuth constant $+ 5^s.00$; therefore the adopted azimuth constant is $4^s.878$.

Hence the correction to sidereal chronometer Negus No. 1344 for $17^h\ 0^m$ local sidereal time is $+31^s.612$, and its rate is $- 0^s.042$.

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For the exchange of signals, the mean solar chronometer Hutton No. 288 was employed.

Some mistake was made in comparing Hutton No. 288 with Negus No. 1344 before the exchange of signals, and the rate of Hutton No. 288 was derived from the following comparisons:

Date.	Negus No. 1344.	Hutton No. 288.
	h. m. s.	h. m. s.
June 16.5	18 45 48.0	12 45 8.75
17.0	6 44 37.0	0 41 59.5

By means of the correction and rate of Negus No. 1344, the following correction and rate for Hutton No. 288 are deduced:

Date.	Time by Hutton.	Correction to Local Sidereal Time.	Hourly Rate.
1871.	h. m. s.	h. m. s.	s.
June 16.5	12 45 8.75	+ 6 1 10.79	+ 9.8561

This correction and rate is used for Hutton No. 288, at the time of exchange of signals.

Date.	Signals sent from—	Time of Mean of Signals by Washington Clock.	Correction of Washington Clock.	Local Sidereal Time of Mean of Signals.	Time of Mean of Signals by Austin Chronometer.	Correction of Austin Chronometer.	Local Sidereal Time of Mean of Signals.	Differences of Longitude.	Means.	Wave and Armature Time.	Final difference of Longitude.
1871.		h. m. s.	s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	s.	s.	h. m. s.
June 16	W. to A.	20 16 0.00	− 2.27	20 15 57.73	11 34 56.16	+ 6 0 59.26	17 35 55.42	2 40 2.31	2.32		
		20 38 15.40	− 2.28	20 38 13.12	11 57 7.90	+ 6 1 2.90	17 58 10.80	2 40 2.32		0.61	2 40 2.93
	A. to W.	20 25 19.37	− 2.27	20 25 17.10	11 44 12.74	+ 6 1 0.78	17 45 13.52	2 40 3.58			
		20 49 0.41	− 2.28	20 48 58.13	12 7 50.00	+ 6 1 4.65	18 8 54.65	2 40 3.48	3.54		
		20 58 57.63	− 2.28	20 58 55.35	12 17 45.50	+ 6 1 6.29	18 18 51.79	2 40 3.56			

The exchange of signals on June 16 gives, therefore, a difference of longitude of—

$$2^h\ 40^m\ 2^s.93$$

Applying the correction, $-0^s.036$, for the position of the transit-instrument at Washington, we have the observing-station at Austin, Nevada, west of the center of the dome of the Naval Observatory,

$$2^h\ 40^m\ 2^s.89$$

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